FEBRUARY 1953

News Magazine of the American Standards Association, Incorporated

How Everyone Profits

Neat bins of grinding wheels in standard sizes and shapes illustrate one important saving due to standardization—smaller, more efficient stockroom space. Marked according to the standard system and neatly stacked, each type wheel is easy to locate. Proper storage also prevents chipping and breaking. Standardization work is still going forward

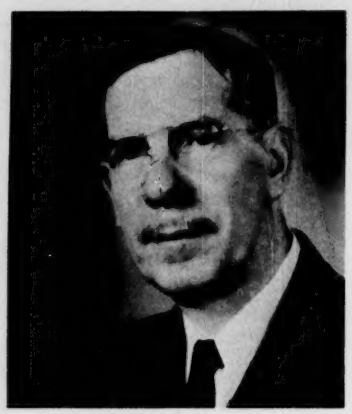
(page 40)

American Standards Association, Inc

Marginal Notes

The Standards Engineers Society—

The young but growing society of standards engineers is moving into 1953 with a new slate of officers and an official Constitution and By-Laws



William L. Healy
Standards Engineers' President

(page 53). The organization was started soon after the war by a few enthusiastic individuals who believed the time had come to bring engineers concerned with development, use, and application of standards into a technical society of their own.

A Flying Start for 1953—

The year got off to a good start as far as standardization is concerned. During the first month three general conferences brought suggestions for work in new fields not heretofore under consideration. Two have been recommended to the American Standards Association—on fabrics for use by institutions and on woodsawing practice. The other, on methods of establishing motion-time data, was not recommended. The conferences on woodsawing and on motion-time data took place too late in the month for a complete report in this issue of STANDARDIZATION; however, watch for the stories in the March issue. All three were outstanding conferences—and furnished unusually fine evidence of the way ASA's procedures operate to give all concerned an opportunity to present their divergent points of view.

The conference on fabrics for use by institutions is reported on page 52 of this issue. Standard tests and specifications are needed, it was explained, because many hotels and other institutions are running into trouble when fabrics shrink in washing, fade in sunlight, or disintegrate in cleaning. Most of the difficulty is due to lack of understanding and knowledge about how materials will react. At any rate, ASA is taking the necessary steps to organize a committee representing all the groups concerned. Representatives of consumer groups expressed the hope that any standards developed would be adaptable to their problems. However, it was agreed that the primary job, to be undertaken immediately, is to provide standards for use by the institution buyers.

Measuring fabrics before washing to check on shrinkage

American Hotel Assn

Some ASA Statistics—

Eighty-seven American Standards were approved by the American Standards Association in 1952, bringing the total now in effect to 1264. Company members of ASA number 2337; and 114 trade associations, technical societies, and consumer organizations are enrolled as ASA members.

Our cover photo—courtesy of Carrier Corporation, Syracuse, New York

Opinions expressed by authors in STANDARDIZATION *are not necessarily those of the American Standards Association.*

Standardization

Formerly Industrial Standardization

ASA

Reg. U. S. Pat. Off.

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Standardization is dynamic, not static. It means not to stand still, but to move forward together.

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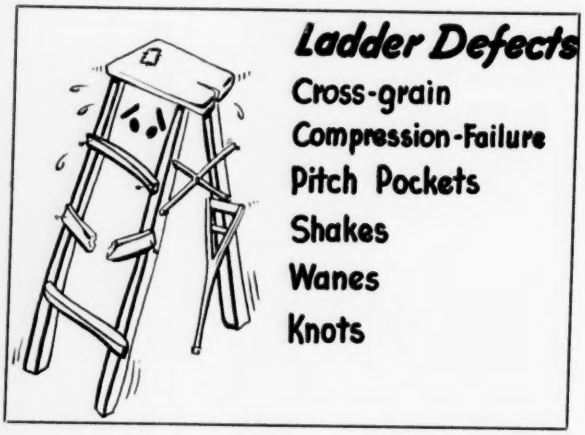
The Patent Scaffolding Co, Inc



to prevent

that ladder accident

Cartoons reproduced by permission of THE HOTEL MONTHLY

IT PAYS TO BE CAREFUL

by L. J. Markwardt and A. J. Freas

"WOOD ladders are familiar to everyone, but there are many misunderstandings concerning their design and use. Moreover, common and serviceable as ladders are, there is an ever-present possibility that careless use may result in a serious accident, or misconceptions about their strength may lead to overloads that can cause damage or failure.

For this reason, a committee working under the procedures of the American Standards Association some years ago developed a safety code covering the construction, care, and use of wood ladders. Recent adoption of a revision of this American Standard makes available the latest recommendations of the committee in this important field.

Many species of wood are suitable for ladders, but the softwoods are commonly used for side rails. These woods include Sitka spruce, noble fir, western hemlock, and Douglas-fir. The rungs of single and of extension ladders are characteristically of a denser species, usually hickory, ash, or oak, to provide adequate resistance to wear.

Most significant of the revisions in the new standard is that relating to the reclassification of good species and a simplification of the grouping of the woods used for ladders. The revaluation was based on an analysis of all available data on strength properties, including current additional test results from the U.S. Forest Products Laboratory and the Forest Products Laboratories of Canada.

The number of groups of species was reduced from five to four.

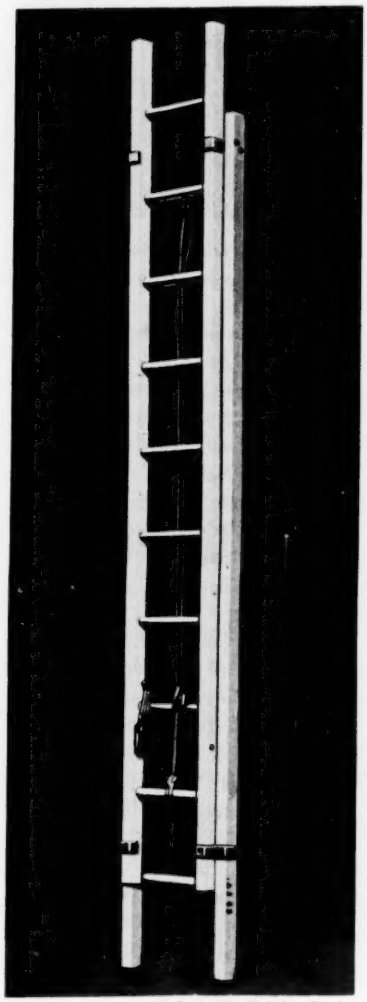
Group 1 woods acceptable for ladder use include such species as hickory, white ash, and white oak that are employed principally for rungs.

Group 2 woods comprise the denser softwoods, namely southern yellow pine, Douglas-fir, and western larch, suitable for side rails and other parts.

Group 3 consists of medium density softwoods and hardwoods, including such well known commercially important woods as spruce, noble fir, west coast hemlock, Norway pine, and yellow-poplar.

Group 4 contains the lower density and lower strength hardwoods and softwoods suitable for ladder construction. Size requirements for species of different inherent strength are established to insure ladders of adequate minimum performance standards.

Rather than restrict wood ladder construction to a very few species, the revised code follows the precedent of previous issues in providing for the interchangeable use of a considerable number of other native woods. The purpose is to provide adequate flexibility in procurement to permit use of local species when desirable, and to provide latitude for meeting the continual change in availability of wood with changing forest conditions. A table of average weights of the various species of wood is included in the appendix of the standard for use in design in connection with the formulas for stress calculations given in the code.



The Patent Scaffolding Co, Inc

Overlaps for extension ladders are specified in A14.1-1952—20-ft ladder only extends 17 ft.

It is the manufacturer's responsibility to see that the wood used is properly seasoned; that rungs and side rails of good quality are selected; that defects and characteristics that affect the strength are limited in accordance with the code; and that the ladder is well manufactured. The most important defects are cross grain and compression failures.

Since wood lends itself satisfactorily to visual inspection, reliable manufacture and inspection will insure a ladder of good quality and strength that affords safety with proper use. Usually ladder side rails are free from knots, although in reality a knot at the middle of the width of a side rail has very little effect on the strength: in fact, it has less effect than the hole bored for the rung when the knot is of the same diameter.

Length of Extension Ladders

In purchasing ladders it must be remembered that an extension ladder cannot be used to the full length of the individual sections. Since the size of extension ladders is designated by the sum of the lengths of the sections, it will be found that the 36-foot ladder has, according to code requirements, an overlap of 3 feet when fully extended, and consequently has a net maximum usable length of 33 feet. If a two-section ladder of 36-foot usuable length is required, two

20-foot sections comprising what is designated as a 40-foot ladder must be purchased.

Painting Ladders

The stepladder, as well as the single and extension ladders, is covered by the safety code. The following discussion of painting, testing, care, maintenance, and safety are equally as applicable to the stepladder as to the other types. In fact, all ladder equipment, including scaffold planks, swing stages, trestles, etc, should receive the same consideration.

New ladders, except certain specialty items, are sold in an unpainted or unfinished condition. In this condition, the ladder parts can readily be checked for cross grain, compression failures, and quality of wood. A transparent finish such as varnish, shellac, or a clear preservative is recommended. With such a finish, or unpainted, the ladder can be inspected from time to time. Some State safety codes require transparent finishes or that ladders be left unpainted for these reasons.

On the other hand, when adequate initial inspection has been made, some companies find it desirable to paint ladders and maintain them in a painted condition. Painting may increase serviceability and reduce splintering, as well as improve appearance. It is only to be recommended, however, after adequate initial inspection has been made by competent organizations that have thorough inspection and maintenance programs. Painting itself does not increase durability or resistance to decay.

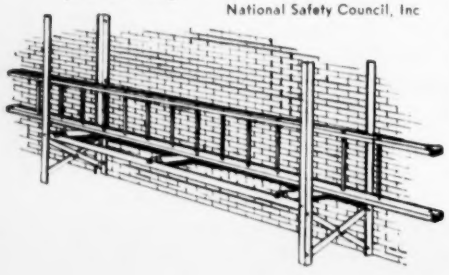
Don't Test That Ladder

It may be noted that the wood ladder in this inspection procedure has not been given any test loading. There is no simple satisfactory method of proof testing wood for strength, and any test loading much beyond the design load may result in serious damage to the side rails. Sometimes a ladder is tested by supporting it horizontally on horses at the ends and having a man jump on it at the center.

Such a test method should never be used because it subjects a ladder to more severe loads than it was ever intended or designed to carry and because, even if it does not fail, it may sustain injuries in the form of compression failures that may be the source of sudden failure and serious accident in future use. Hence, don't test that ladder, but rather give it a critical visual inspection to insure that it meets all needed requirements.

A good method of storing ladders to prevent sag.

National Safety Council, Inc



National Safety Council, Inc

The right way to use a ladder. Foot of ladder is placed a distance from the wall equal to one-quarter the supported length of the ladder.

Strength and Design

Single or extension ladders are not designed to carry loads when stretched out full length horizontally over end supports. This is the function of scaffold ladders or scaffold planks. In ladder design, the strength is calculated on the assumption that the ladder will be used with the base moved out from the wall against which the upper end rests by a distance equal to one-fourth the length of the ladder. If the base is out farther, the loading condition is more severe than that for which the ladder was designed. If the base is too near the wall, the ladder becomes less safe because it is more unstable.

Wood ladders meeting the minimum requirements of the American Standard Safety Code for Portable Wood Ladders are designed to carry safely an assumed load of 200 pounds, when the load is at the center of the rungs midway between the two side rails, and when the foot of the ladder is moved out of the perpendicular by one-quarter of its length. These design conditions indicate the limitations that must be kept in mind in the use of a ladder.

Care should be used also in the

handling of ladders to see that they are not unnecessarily dropped or allowed to fall. Rough handling in this manner may produce cross breaks or compression failures that seriously impair the strength of the side rails and that may lead to sudden failure with subsequent personal injury. Many accidents have been traced to causes of this kind.

It has been pointed out that the safety code for the correct construction and use of ladders is based on the minimum requirements to afford safety under average conditions of use. Sometimes for heavy industrial uses where extra weight must be carried on ladders, or where there is continuous and extensive handling and hauling, it is desirable to use stronger ladders, such as may be obtained by employing rails of somewhat larger cross sections than those recommended for ordinary use. Such so-called heavy-duty ladders provide an extra margin of safety and may be important in reducing ladder accidents where circumstances indicate their need.

Maintenance and Safety

Wood does not deteriorate with age, when protected from adverse exposure and from decay. Hence, wood ladders properly used, cared for, and maintained will have long life and give continued service over many years.

Storage of Ladders

Wood ladders, when not in use, should be stored under shelter and in a place where there is good ventilation. They should not be stored near radiators, stoves, steam pipes, or other places subjected to excessive heat or to dampness. Further, they should be supported so that the weight of the ladder is distributed, and sag will not occur. For example, if a long ladder is hung from two hooks near the end, considerable sag at the center will take place from the weight of the ladder. If so hung for an extended period the ladder may become permanently sagged. Likewise, ladders carried on vehicles should be adequately supported to avoid sag and fastened to minimize damage in transport.

Maintenance

Ladders should be inspected frequently to determine whether repair is needed, or whether they have become otherwise unserviceable. Good maintenance practice requires that the joints between steps and side rails be kept tight, that hardware and fittings are securely attached, and movable parts operate freely. Rope should be replaced when necessary, and metal bearings of locks, wheels, and pulleys should be lubricated. Attempts to repair broken side rails or rungs are to be discouraged. If a side rail is broken, either the ladder should be discarded, or a complete new side rail of proper size and quality should be installed.

Proper Use

Regardless of how strong or how perfect a ladder may be, it may still be a hazard if not properly used. Avoidable ladder accidents are still all too numerous. Some of the important safety practices that should be followed are the following:

Portable ladders should, where possible, be used at such a pitch that the horizontal distance from the top support to the foot of the ladder is one-quarter of the length of the ladder in use. Obviously, the ladder must be on a level footing and be so placed as to prevent slipping, or be lashed, or held in position.

Ladders should not be used in a horizontal position as a platform, runway, or scaffold, nor for any other purpose than that for which they were designed. To illustrate, the common household type stepladder should never be used for heavy maintenance work.

For other than short ladders, additional help is needed for safe handling, particularly under unfavorable conditions, such as uneven footing, the presence of ice or snow, or gusts of wind.

Ladders should be faced when ascending or descending, as the safest method of use.

With the exception of special types, ladders are not designed to support more than one person, or to support heavy objects. Carrying heavy objects on a ladder is even more critical when the weight is mostly on one side, so as to be carried largely by one side rail. Failures, with resulting personal injury, have resulted from overloaded and misused ladders.

It is important also to make certain that the feet of the ladder are so placed as to avoid slipping. Special safety feet for ladders may be particularly helpful in avoiding accidents under certain conditions.

Someone has said that a little knowledge is a dangerous thing. With ladders, a lot of knowledge, mixed with care and discretion, means safety. It pays to be careful when personal safety is at stake.

A NUT AND BOLT WORTH $1 SAVES $1,000,000

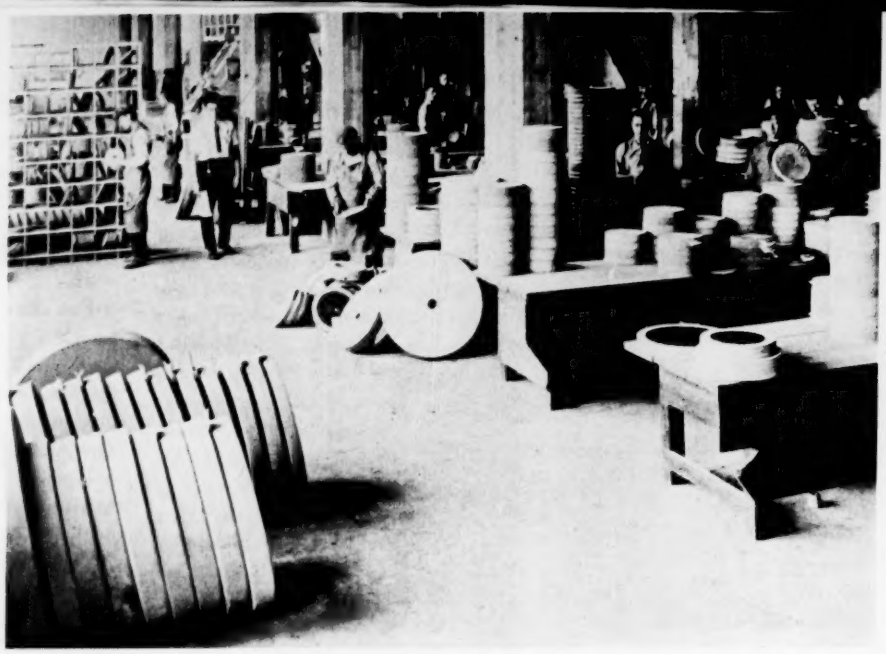
—From "Planes," October 9, 1952—

By standardizing spare parts, aircraft manufacturers have gotten down to the "nuts and bolts" of saving tax dollars. In fact, one standardized nut and bolt will save over a million tax dollars this year!

Industry and military teamwork in introducing standardized parts in the aircraft industry has replaced thousands of individual company-made engine and propeller hardware parts with relatively few standard designs. Because of large orders on these standard parts, builders and buyers of powerplants and propellers for military aircraft have used some 78 million fewer "hardware" parts in 1952.

Volume production of the fewer standard items cuts manufacturing costs and results in savings such as the million dollar dividend cited above. The smaller parts inventory required for standardized items also eases engine and propeller production and simplifies procurement of spares by the services.

Other advantages derived from this element of the aircraft industry's broad cost-reduction program are (1) manhour savings on production and procurement and (2) savings in valuable factory space through reduction in the necessary parts stocks.



Everyone Profits From Grinding Wheel Standardization

by Fred W. Vogel

Abridged version of article based on a special report prepared in collaboration with the Grinding Wheel Institute, published in Modern Machine Shop, *October, 1952*

MANUFACTURERS of grinding wheels are once again renewing their efforts to bring about more complete standardization in the industry. Tremendous benefits are visualized from a further reduction in the number of wheel varieties now available.

Behind every move toward greater standardization is a move toward improved safety. This consideration is mandatory in view of the large number of grinding wheels in daily use throughout the consuming industries. The grinding wheel industry, in fact, is taking advantage of standardization changes to replace wheels of safe design with those of even greater intrinsic safety. In the last analysis, a new standard wheel is either accepted or rejected on the basis of whether or not it is safer in use than those it replaces, or safer than any other which modern grinding wheel technology currently can devise.

Design considerations in the current standardization program concern themselves mainly with two things: (1) Grain size; (2) Shape and size of the grinding wheel itself.

Considerable work has already been done in standardizing these two basic wheel specifications. Future progress in this direction will stem from standards which have been carefully developed by the industry and then accepted for publication and distribution by the Commodity Standards Division of the National Bureau of Standards of the United States Department of Commerce.[1]

Grain size standards which have been adopted provide for a uniform classification in terms of the number of meshes per linear inch of screen. These standardized grain sizes aid substantially in the production of uniform finishes, consistently high quality grinding wheels turned out at continuously maintained high levels of production, and stabilized methods or operating practices.

Probably the most dramatic progress of all has been made in standardizing wheel shapes and sizes. Prior to the adoption of standard shapes in 1926 the total number of possible varieties of grinding wheels was in excess of 750,000—and was growing fast. It was this overwhelming number of different grinding wheel sizes and shapes which at that time forced the industry to launch its first all-out standardization program.

Through the adoption of standard shapes recommended at that time a reduction to approximately 250,000 wheel varieties was accomplished. While it might seem that the existence of some 250,000 varieties scarcely represents standardization, this is actually a small figure compared to the astronomically large number of wheels which conceivably could be made. Moreover, it must be remembered that standards defeat their purpose unless they encompass the widest practicable range of needed wheel sizes and shapes.

Chaos springs readily from the situ-

[1] The standardization referred to here is a simplified practice program (see list of publications, page 44).

Carrier Corp, Syracuse, N.Y.

Inspection room 25 years ago (p 40) piled straight grinding wheels like pancakes. Today (above) standard wheels are stored vertically in bins. Segments are on top of one another in boxes; small wheels or mounted points are stored in drawers, boxes, or small bins.

ation where no standards exist, with the result that each grinding wheel manufacturer sets about making a different wheel for the same application. This is why the industry is striving to make one wheel do the work of many—providing it does the work as well as any of the replaced wheels—and why duplications are being eliminated wherever they are discovered. But the reduction process does not, and cannot, involve cutting down the number of wheel varieties to some arbitrarily determined number at the expense of failing to meet the demand for wheels whose design is unique for some justifiable production reason.

Actually, standardization is a continuing process—a job without end. This is true because through the years many wheel types have become unnecessary and were dropped, while new industrial applications have forced designers to create entirely new wheels which had to be included among existing standard types. But standardization has not yet reached the point where the dropping and adding of types to meet changing needs is the only function of the grinding wheel industry. Much solid work of a fundamental nature is still to be done.

Simple comparison is the basic method by which a multiplicity of wheel shapes was reduced to the smallest number feasible for present needs. A complete list of existing sizes of each given type of wheel was compiled. These were checked against each other by a layout plan where sizes of a given diameter and similar shape were drawn over each other.

In one instance, layouts of twenty-two 6-in. dish grinding wheels were examined and found to be so similar that virtually any one of them could do the grinding work of any other of them.

These twenty-two varieties were reduced to just two sizes and shapes. This was possible because none of the design variations had any bearing on the engineering principles involved in their intended grinding applications. The two wheel designs finally developed did every job just as well as any of the twenty-two wheels which were made obsolete.

The benefits of standardization can be even better appreciated by visualizing the problems which would result if no standards were available. For example, at the present time there are 185 standard shapes and sizes of mounted wheels and points. They are subdivided into the following groups: Twenty-six large formed wheels identified by "A" numbers, such as A1, A2, and so on; fifty-four small formed wheels identified by "B" numbers, such as B41, B42, and so on; and the balance of 105 plain, cylindrically-shaped wheels of various sizes designated as "W" shapes, such as W141, W142, and so on.

Since many of the "A" and "B" shape wheels are rather intricate in design, it would be extremely tedious and difficult for the purchaser, for example, to write individual specifications for each item ordered without inviting error on the part of both consumer and supplier. Standardization, through its universally accepted system for marking and designating grinding wheels,[2] assures the purchaser that he will get the desired wheel from any manufacturer—at any time—and without error, merely by providing the mounted wheel shape number and mandrel specification.

[2] American Standard Markings for Grinding Wheels and Other Bonded Abrasives, B5.17-1949.

The Grinding Wheel Institute and the International Association of Governmental Labor Officials, sponsor for the B7 project, have advised ASA that work is being started toward a revision of American Standard Safety Code for Use, Care, and Protection of Abrasive Wheels, B7.1-1947.

A meeting of Sectional Committee B7 on Abrasive Wheels was held in Washington January 29 and 30.

Standardizing grinding wheel shapes and sizes has brought to abrasives users these advantages:

1. **Reduction of Inventory.** Prior to the establishment of standards, users of wheels were confronted with the problem of carrying many special shapes and sizes in their stocks for special applications. Not only was there the warehousing burden of these large stocks, but considerable time was wasted in constantly—and needlessly—changing grinding wheels for every change in production requirements. The standardization which reduced the number of standard shapes almost in the ratio of 3 to 1 offered the user more adaptable wheel shapes and sizes which could be used for the largest number of operations on the widest variety of machine equipment within the scope of their intended use.

2. **Better Quality Products.** The user of grinding wheels benefited further as abrasive manufacturers began to specialize in the standard shapes and sizes. Wheels of a given specification were made in larger lots, which made it possible to maintain more accurate control of abrasive components. Dimensional tolerances also were narrowed and finish practices became more standardized. All of this resulted in the production of grinding wheels that were uniformly efficient from lot to lot—an absolute necessity in supplying industries where it is imperative to maintain production schedules on long runs of identical parts.

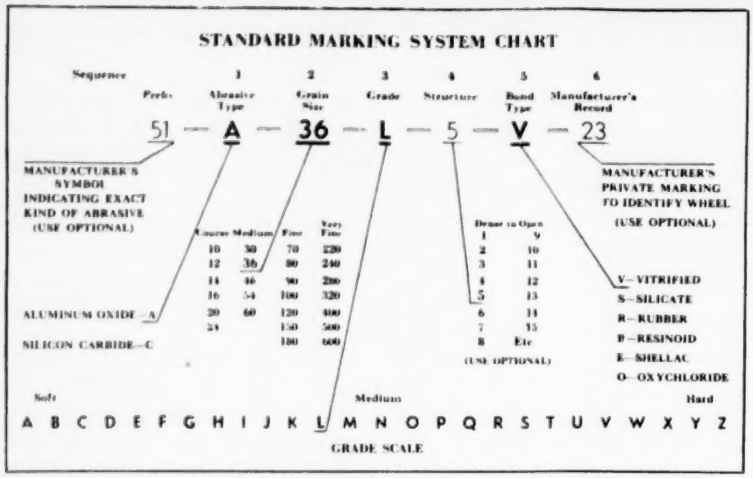


Table 1. Standard Marking System in Accordance with American Standard B5.17-1949

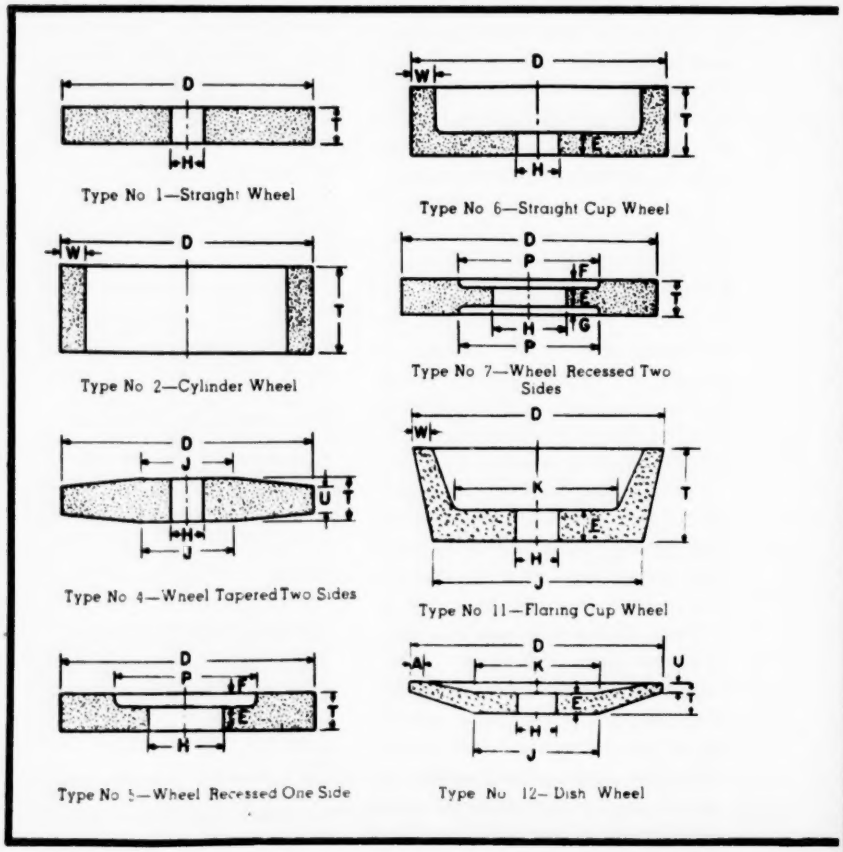
3. **Cost Reduction.** The efficiencies resulting from standardization not only inspired the development of better quality products but also reduced costs. With fewer items to manufacture the abrasive wheel producers devoted more time and energy to refinements of their products. This provided users with wheels whose grinding characteristics had been completely determined and which gave maximum productivity at the lowest possible cost per unit ground.

4. **Interchangeability.** The advantage enjoyed by the abrasive wheel user in being able to use many of his grinding wheels interchangeably on similar machines is derived from standardization programs carried on concurrently by wheel manufacturers and machine builders. It is not uncommon today to find centerless grinding wheels 24 inches in diameter being used down to 20 inches at which point they are transferred to other centerless machines and used down to the flange diameter, thereby securing maximum use of the abrasive. Similarly, snagging wheels originally 24 inches in diameter may be used down to 20 inches in diameter, and then transferred to a smaller swing frame grinder to complete their useful life. Such dollar saving interchangeability is made possible only through standardization of wheel thicknesses and arbor hole sizes.

5. **Improved Deliveries.** Modern industry tends strongly to operate on the basis of minimum inventories, and therefore depends heavily on an uninterrupted flow of readily available tools and raw materials to maintain production. The large scale use of standard specifications makes it possible for customers' abrasive requirements to be anticipated more readily by the abrasive manufacturer. The result is that standard items can be stocked for immediate delivery, and less of the customer's capital need be tied up in stocking special items which can only be made up on order and require longer time for delivery.

6. **Ease of Ordering.** One of the most recent phases of standardization is the development of a system of positive identification and specification of wheels and rubs used in the surfacing of stone, terrazzo and concrete floors. Each standard size and shape has been assigned a specific code number which identifies the complete size and shape specifications for the item, and designates it as intended for use on the equipment of a given machine manu-

These types of grinding wheel shapes are most widely used today. They were adopted by the Grinding Wheel Institute in cooperation with the National Bureau of Standards and the American Standards Association. The type num-



facturer. Numbers are prefixed by the letters FW (floor wheel), FR (floor rub) and HR (hand rub). Formerly, each abrasive manufacturer used his own coded identification of these commodities. Now, however, the user can, by specifying a standard shape such as an FW26, be assured of receiving the wheel he wants, regardless of the source of supply.

7. **Safety.** A major consideration of grinding wheel users is safety in use. In standardizing grinding wheel shapes, the industry not only has given careful attention to this factor, but has also cooperated energetically with the ASA in the formulation of detailed recommendations for safe grinding practices. For example, Type 6 cup wheels are specified with adequate thicknesses of wall and back. Similarly, Type 1 vitrified snagging wheels are specified with arbor holes of the proper size to minimize danger of rupture at stub diameters. The designs of all wheel sizes and shapes listed as standard are carefully reviewed and selected from this safety standpoint.

Realizing the importance of a uniform system of identifying grinding wheels, the Grinding Wheel Institute has established a standard method which uses six basic elements common to all abrasive wheels, regardless of the manufacturer. Since a grinding wheel cannot be properly designated in fewer than these six variable elements, it is clear—in view of the many possible combinations—why every effort to standardize and minimize sizes and shapes must be made. The system for marking wheels is shown in Table 1.

The first marking position at the left of the table indicates the abrasive of which the wheel is made, such as aluminum oxide (A), or silicon carbide (C). A prefix letter or number sometimes is used here to indicate a modification of the basic abrasive type.

The second position is a number of meshes per linear inch of screen indicating the size of the particle of abrasive grain used in the wheel.

Third position is a letter (A to Z, soft to hard) which specifies the grade or the degree of tenacity with which the bonding material holds the grain particles together in the wheel. This position designates the "hardness" of the wheel, and is not to be confused with the hardness of the abrasive grain itself.

Fourth position in the standard marking system for grinding weels tells the structure or grain spacing (0 to 16, dense to open.)

Fifth position employs a letter to designate the bond type. V means vitrified; S, silicate; R, rubber; B, resinoid; E, shellac; and O, oxychloride.

Sixth position signifies the maker's detail of manufacturing and its use is optional. It may be used by him for any purpose, and usually refers to a modification of the bond. It also serves to identify the manufacturer.

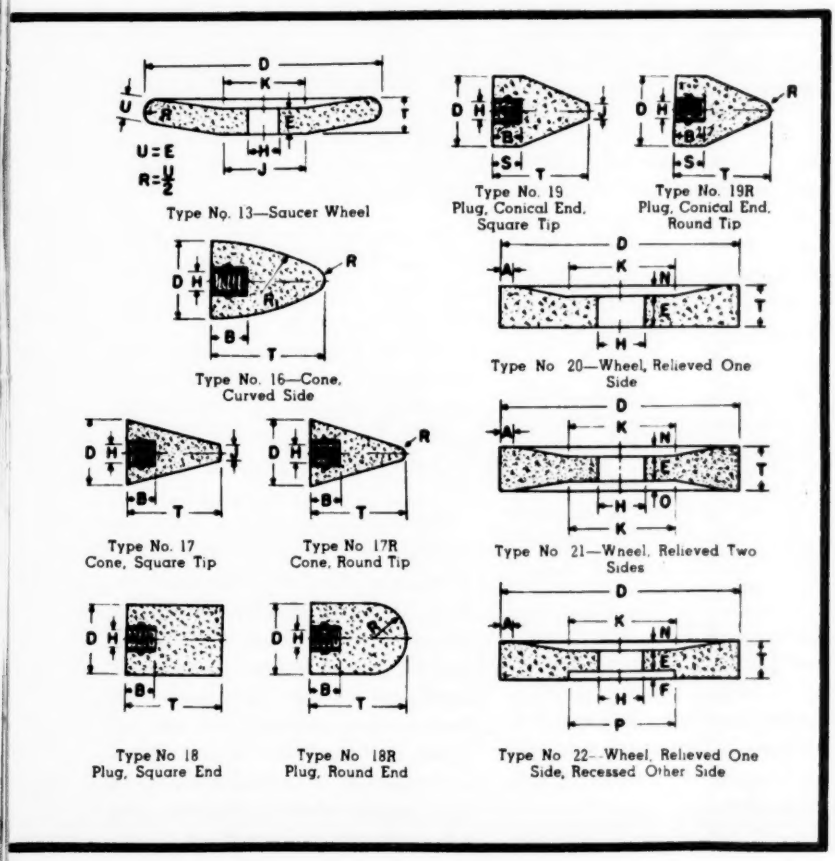
By this means it is possible to recognize the elements contained in a grinding wheel, providing an accurate description for purposes of ordering, stocking and allocation of the correct abrasive material for production purposes within the users' plant. The specification number is stenciled on each wheel by the manufacturer.

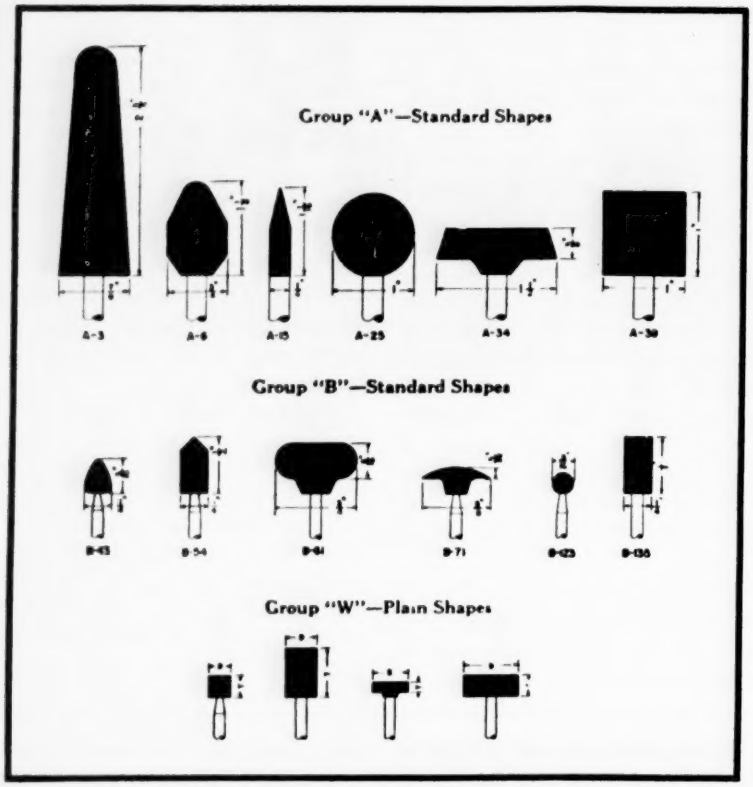
Useful and valuable as it is, this standardization system applies only to marking and does not necessarily mean that abrasive wheels of different manufacturers which are similarly marked will always produce identical grinding results.

The Grinding Wheel Institute has made available the following pieces of

Fred W. Vogel, the author, is editor of *Modern Machine Shop*. He worked with the Grinding Wheel Institute in collecting the data that went into this comprehensive story of the abrasive wheel industry's standards.

bers, used with dimensions corresponding to applicable letter symbols, make it possible to describe the shape and size of any standard grinding wheel without using a detailed drawing. This simplifies ordering and record-keeping.





Standard mounted wheels and points differ from standard grinding wheels in that they are mounted (usually cemented) on spindles. The three groups of standard shapes and sizes are shown above. As with standard grinding wheels, the type number and appropriate dimensions are all that is needed to completely described the shape and size of any standard mounted wheel or point.

literature which deal with grinding wheel standardization and the safe and efficient use of grinding wheels:

1. *Grinding Wheels — Standard Shapes and Sizes of Grinding Wheels* —(Simplified Practice Recommendation R15-47. National Bureau of Standards.) This booklet sets forth industry standards for grinding wheel shape types with detailed dimensions. All wheels listed also are classified according to basic uses.

2. *Abrasive Grain Sizes*—(Simplified Practice Recommendation 118-50, National Bureau of Standards.) This booklet lists the allowable limits for the sizing of aluminum oxide and silicon carbide abrasives both for grinding wheel manufacture and for polishing purposes.

3. *American Standard Safety Code for the Use, Care and Protection of Abrasive Wheels, ASA B71-1947.* (American Standards Association.) The scope of this publication includes rules and specifications for protection hoods, flanges, chucks, and revolving cup guards and rules for the proper storage, handling and mounting of wheels. It gives minimum arbor sizes and maximum safe operating speeds of grinding wheels.

4. *Specifications of Segments Used in Chucks* (Grinding Wheel Institute, 2130 Keith Building, Cleveland 15, Ohio.) This booklet contains diagramatic sketches of chucks showing the holding mechanism as well as complete dimensions for all standard shapes listed.

5. *Mounted Wheels and Points, Safe and Efficient Operation—Critical Speeds* (Grinding Wheel Institute.) This booklet lists all standard mounted wheel shapes giving general rules for safe operation together with tables of critical speeds.

6. *Disc Grinding—Safe Rules and Methods* (Grinding Wheel Institute.) The purpose of this booklet is to describe the special features of disc grinding and to illustrate recommended practice with respect to mounting procedures and the use of safety techniques.

7. *Handling, Storage, and Inspection of Grinding Wheels—Safe Rules and Methods* (Grinding Wheel Institute.) This booklet presents proven methods and rules to follow for the safe storage, handling and inspection of grinding wheels.

8. *Mounting Techniques for Wheel Sleeves on Cylindrical Grinding Machines* (Grinding Wheel Institute.) 2P-3-52. This publication deals exclusively with the elimination of wheel breakages on cylindrical grinding machines by recommending the specific amount of "wrench pull" for the operator to use when mounting wheels on each of the more common types of cylindrical grinding machines.

9. *Safe Speeds for Grinding Wheels* (Grinding Wheel Institute.) 1P-42. This booklet based on the rules in the American Standard Safety Code B7.1-1947 discusses established rules governing the proper speeds to be used for safe grinding wheel operations, touching on wheel strength, peripheral speeds and the over-all efficiency of low safe speeds in respect to reduced wheel breakage.

10. *Portable Grinding Machines, Safe and Efficient Operation* (Grinding Wheel Institute.) 4P. The purpose of this booklet is to outline the conditions that are likely to cause trouble and to provide information regarding the safe use and maintenance of Portable Grinding Machines for both the workmen and the supervisor.

11. *High Speed Grinding Machines —Heavy Duty Maintenance of Swing Frame and Floor Stand Machines— Large Hole, Organic Bonded Wheels* (Grinding Wheel Institute.) This booklet outlines in general terms the conditions largely responsible for trouble if not corrected, and supplies information needed to facilitate proper inspection and maintenance of that portion of the equipment that affects the safety of the wheel.

A Development Tool for Electrical Utilities

by Howard P. Seelye
The Detroit Edison Company

STANDARDIZATION in the electrical utility industry ranges all the way from standards which each manufacturer sets up for his own processes and products, through industry-wide standardization of the materials and equipment which are commonly needed, to standardization within each utility of items it uses and methods of using them. There is also international standardization. All of these are of significant importance in the success of the whole program and in the very real dollar savings which have been and can be accomplished by all of us. This paper will confine itself to industry-wide standards and some of the problems encountered.

Although the value of standardization is quite generally recognized, there are a number of people who are somewhat less than enthusiastic about it. They consider it, at best, a deadly and uninteresting matter, and, at worst, an attempt by a few ultra conservatives to impose their own ideas on everyone else and to impede progress by putting a "fix" on present practices. In a different aspect, standardization is something alive and vital, an essential part of our high state of industrial development and our high standard of living. When properly done and properly used, it is flexible and progressive and an invaluable part of growth and development in our industry.

The Purpose of Standardization

"Standardization" in this sense is the voluntary mutual agreement by a large part of the industry on certain matters which have developed to a point where they are considered satisfactory for their purpose and can be used without change for a reasonable time in the future. This may apply to a formula for steel, a system voltage, a method of testing transformers, the interrupting capability of a circuit breaker, the dimensions of a wood cross-arm, or any other of thousands of such items. Standardization, therefore, constitutes a review and summary of past practice, to select the best of those things which have been thoroughly tried out, clearing away the unnecessary variations and divergencies, fixing for the time being those things which are well developed, and allowing greater concentration on those features which are still in the state of rapid change.

The purpose of all standardization is, of course, economic—lower costs and higher production. It is rarely possible, even for an individual item, to give an exact account in dollars of the benefit derived. It is still more impossible for a large class, or for the work as a whole. We know, for example, that the standardization of distribution transformers by the elimination of numerous variations in detail cut manufacturing costs and cost of handling, stocking, and field erection. I doubt that anyone would hazard a guess as to the total amount saved, except that it is very large. In a broad sense, the present state of development of the electrical industry would have been impossible without standardization. This is obvious when we think of bolt threads, wire sizes, and lamp sockets. It is not always so obvious, but just as true, in the case of larger items. It must be recognized that the economy of the automatic machine and the production line is dependent upon standardization and these are the basis of low cost production. Standardization effects reduction in the amount of hand labor entering into the production and use of any device, and therefore is a measure of conservation of one of our most important resources, labor.

A specification on what it takes to make a successful standard would go something like this:—

(*a*) It must be approached with a spirit of understanding and patience and a great deal of tolerance.

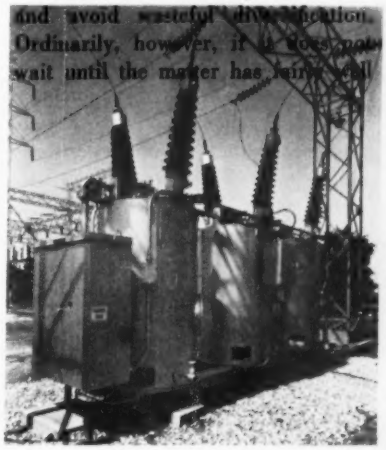
(*b*) It should be a cooperative effort of the various people who are to use it and those who are to make it. Each has his own needs and problems. The result must be reasonably satisfactory to all or it cannot succeed.

(*c*) Compromise is a prime necessity in reaching a mutual agreement where there is a variety of ideas and of needs. Compromise can be carried too far, however, in the urge for simplification. Real needs must be recognized. A size 7 hat will not do for all men with size 6½ to size 7½ heads in spite of the economy of one size.

(*d*) It must be flexible — must have sufficient variety to cover as much of good practice as possible and allow for development. A narrow, rigid standard may have only a narrow application and is therefore not a real standard. This does not mean, however, that a standard can include everybody's practice or pet ideas—the purpose is to cut down on these.

(*e*) It should avoid "special interests" such as patented articles or advantages to individuals or groups rather than to all.

(*f*) It should not run too far ahead of development. It sometimes looks like a good idea to concentrate in advance on one design or scheme and avoid wasteful diversification. Ordinarily, however, it does not wait until the matter has fairly well



Presented before the Southeastern Electric Exchange, Atlanta, Ga., Sept. 25, 1952.

matured, it tends to restrict progress. Such standards are usually ineffective.

(*g*) Acceptance of a standard must be voluntary and usually on the basis of individual economic advantage. Certain codes and broad general standards may get legal backing but the more specific items are subject to the user's choice. If they are not attractive they will not be used. An old standard for 3½ in. x 4½ in. crossarms was eventually modified to include 3¼ in. x 4¼ in. because the latter had wide use and was cheaper.

(*h*) Most standards are never "finished." They represent the best thoughts up to the present and must last for a reasonable number of years in order to be worth-while, but improvements in materials and designs and in common practice eventually lead to further review and revision. For example, the 1945 American Standard for Rotating Electrical Machinery is now being revised.

Sponsorship of Standards

No doubt many have been somewhat confused by the variety of organizations which publish standards. Many of the national engineering societies and other national organizations put out standards or specifications under their own name; in numerous instances they are formulated and issued jointly by two or more of these organizations; and a large body of standards is under the procedure of the American Standards Association. For the most part, the recognized standards of all of these groups have been soundly formulated—based on long years of experience and the collaboration of various interests. There is comparatively little duplication or overlapping, each group having certain specific fields, but cooperating with others when this appears to be to the best interest of all. For example, the American Society for Testing Materials concerns itself mostly with basic material specifications; The American Society of Mechanical Engineers and the American Society of Electrical Engineers deal largely, but not exclusively, with such matters as ratings, performance characteristics, and tests for equipment in their respective areas. The Edison Electric Institute has, in the past, done a considerable amount of work in line hardware, wood products, insulators, and similar materials of particular interest to the electric power utilities, but has usually included the manufacturers in its study committees. Many of these projects are now being reviewed by Joint Committees with the National Electrical Manufacturers Association. The latter association has its own standards for a great deal of the equipment manufactured. Although these are manufacturers' standards, the needs of the users have been recognized and, in a number of cases, they are being translated into joint standards with EEI and others.

The American Standards Association includes in its membership all of the groups which have been mentioned, together with a wide diversity of other associations and organizations, and also individual company members. It is the central melting pot and clearing house of all these standardization activities. American Standards are sometimes formulated by sectional committees upon which there is a balanced membership of all interested parties, including government agencies. Many American Standards, however, are those which have been prepared by one or more of the Member-Bodies and, after proper review, given the stamp of ASA acceptance. In either case, their adoption is required to be virtually unanimous by the broadly diversified interests represented. This gives them a certain authority of industry-wide approval. They carry the assurance of great thoroughness and care in their preparation. In general, American Standards cover those things which are quite firmly established and well-proved, whereas the standards of the Member-Bodies are sometimes more of a special or of a temporary or on-trial nature before being finally presented for ASA acceptance. ASA is an essential key part of the national standardization program. It would be desirable to see its work strengthened and expanded to even greater coordination of all of the diverse programs, with perhaps some means of central cataloging to simplify the whole matter for the ordinary person who needs to use standards.

Specific Standardization Projects

It would be impossible, and also very uninteresting in the limited time available, to attempt to enumerate the various standards which have been set up or even those which are now being actively worked on. ASA alone lists for its Electrical Standards Committee 51 projects, 32 of which were active in 1952. In addition, it has many other projects of interest to electrical utilities. EEI is represented on over 100 projects jointly with other organizations. There are few items of material or equipment used in the electrical industry which have not had attention. In some cases this has been merely in connection with terminology and perhaps methods of testing. In others it has dealt with standards for quality and operating characteristics. Still others have gone further into design details and dimensions. In general, the better developed the item, the greater the detail of standardization which is feasible. Most of you are familiar with many of these activities. A few will be described briefly to illustrate the nature and scope of this great program.

(*a*) *Turbine-generators*

A joint committee of AIEE and ASME produced in 1945 a standard for steam turbine-generators covering the range from 10,000 to 60,000 kw. This was extended in 1950 to 90,000. It lists seven sizes and specifies overload rating, steam pressures and temperatures, generator power factor and short circuit ratio, and hydrogen pressures. It took the place of part of the previous American Standard for Rotating Electrical Machinery. During the year May 1, 1950 to May 1, 1951, approximately 60 percent of all machines ordered in this size range followed these standards and this amounted to 43.5 percent of all units above 10,000 kw (26.5 percent of total capacity).

Consideration is being given to extending this standard to still larger sizes.

(b) Power Transformers

A subcommittee of the ASA Transformer Standards Committee has, after several years of work, recently produced a proposed standard for power transformers up to 10,000 kva in size and for voltages up to 69 kv. This is in the trial run stage. Further extension of this work is expected. Particular attention is being given to the interchangeability of bushings.

(c) Distribution Transformers

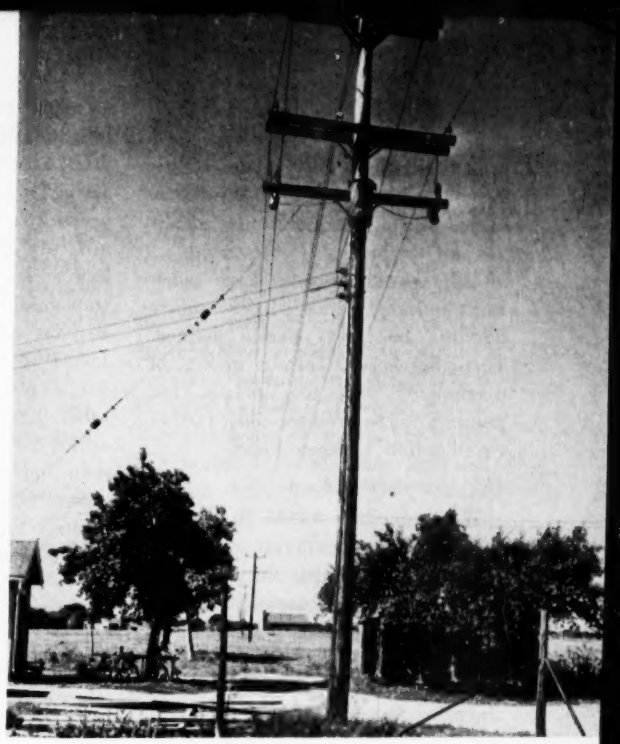
A joint committee of EEI and NEMA has been working since 1938 on a series of reports covering standards for distribution transformers. Prior to this there were so many variations required that one manufacturer reported 26 different designs in one voltage and size. The earlier reports on single-phase transformers were very effective in covering such things as kva ratings, voltage ratings and taps, accessory equipment, arrangement and location of accessories and bushings and terminal connections, also pole mountings. The standards have been largely adopted by manufacturers and users. Later reports extended this work to three-phase transformers, and to higher voltages and larger sizes. The fifth report on overhead transformers is just now being issued. Another report on subway transformers was issued not long ago. This work is coordinated with that of the ASA committee on transformers.

(d) Circuit Breakers

A revision of the American Standards for Power Circuit Breakers is pending. Material on ratings is under study by the Joint AEIC-EEI-NEMA Committee. AIEE is working on other items for the revision.

(e) Conductors

Standards for conductors as to sizes, stranding, physical and electrical characteristics, testing, etc, have been well covered for some time by ASTM and ASA. Recently, the increased use of aluminum conductors caused by the shortage of copper has brought up the question of standard sizes for all-aluminum conductors larger than #0000 for overhead use—should they be in even circular mil sizes or based on copper equivalents? This is still under discussion in ASTM and EEI with no finally accepted agreement at present.



Standards for distribution transformers similar to those shown in this typical installation have been widely adopted by manufacturers and users. Rural line shown here carries both transmission and distribution circuits. Wood poles are also covered by American Standards which classify poles according to strength and dimensions.

The Detroit Edison Co

(f) Poles

American Standards for wood poles covering classification according to strength and dimensions for cedar and yellow pine have been in existence for many years. During the last war, shortage of poles of these species made necessary a wartime emergency standard including a number of other less known timbers. This emergency standard was later revised and made into a regular standard.

(g) Voltages

A report of the joint EEI-NEMA Committee on Preferred Voltage Ratings for A-C Systems and Equipment was issued three years ago. This covers preferred voltage ratings for systems and for various major types of equipment. It does not actually have the status of a standard, but is intended as a basis for standardization by operating companies and by other committees which are working on standards for various types of equipment, such as transformers and circuit breakers. It is having good acceptance for this purpose.

(h) Basic Insulation Level

The joint AEIC-EEI-NEMA Committee on Coordination of Insulation has recently issued a report on Standard Basic Insulation Levels for voltages 92 kv and above. This is a revision of the previous 1941 Standard, introducing modifications for grounded neutral operation. It has been approved for publication by the AIEE.

(i) Street Lighting Equipment

A joint EEI-NEMA Committee has, starting in 1950, issued a series of specifications for street lighting lamps, luminaires, sockets, receptacles, refractors, posts, etc.

(j) NE Code—NES Code

The National Electrical Code, an American Standard produced under the sponsorship of the National Fire Protection Association, is widely recognized as the basis for local rules covering building wiring and electrical installations in buildings. This Code is revised at about three-year intervals; the latest was in 1949, the next will be in 1953.

The National Electrical Safety Code, also an American Standard, deals more generally with safety of installations and operating proce-

dures, and covers overhead line construction in considerable detail. The present edition of this code was published in 1941. There is a revision in prospect in the near future, but it has not yet been actively started.

Although these codes have somewhat different fields, the boundary has not been too clearly defined. There has been a certain amount of overlapping, not too serious, but pointing to the need for some further coordination between them.

(k) Distribution Fuses

Work on the standardization of ratings and time-current characteristics for distribution fuse links for use in open-type cutouts has been going on for quite a number of years. This has recently culminated in an EEI-NEMA Standard for fuse links for 601 to 15,000 volt cutouts, put out for a one-year trial.

(l) Insulators

An EEI-NEMA Joint Committee recently completed a set of six standards for porcelain line insulators—suspension, spool, strain, pin type and post type. This was a revision and extension of previous EEI and manufacturers' standards.

Time will not permit mentioning the many other things upon which valuable standardization work has been or is being carried on—cables, line hardware, lightning arresters, capacitors, lamps, building wiring items, and a host of others, including their component materials. It can be said that from the coal pile to the customer's equipment there is very little that has not been covered. In many cases, revisions and extensions are needed and are being undertaken, but the opportunities in virgin fields are not as great as they were a few years ago. Probably the greatest present need is that the existing standards be recognized and used to their fullest advantage by the people for whom they have been made.

Use the Standards

There is always a considerable amount of inertia and prejudice to be overcome in getting a standard accepted. Too many people vote for its approval for someone else to use. It must be recognized, of course, that there are many situations in which an individual company finds it impracticable to use an accepted standard. My own company, for example, has a long-established 120,000-volt transmission system which would cost too much to change to the preferred 132,000 volt, and the penalty for keeping it is not great. On the other hand, there are many cases in which companies are wasting their own money, as well as preventing others from realizing the fullest advantage from standards by neglecting to face squarely whether their pet "specials" are really as necessary as they think they are. Some engineers do not realize how much it really costs to divert an item from a production line in order to put on a special valve or bracket. Neither do they appreciate that, even though the manufacturer may not charge them the full cost, they are not doing themselves or others any good in the long run by accepting it unless it is really needed.

In a broad sense, the field of standardization in the electrical utility industry has been well covered. The present status is remarkably good, especially in view of the relatively few years in which this work has been organized. Fifty years covers most of it—ASTM is now celebrating its 50th anniversary, ASA its 33rd. The activities for the future lie largely in revising and extending the present standards as it becomes necessary and feasible to do so, with such additions as come about through new discoveries. Our standards must have continuous attention as an active part of the progress of our industry—there is no such thing as finishing the program. The framework for carrying this work by the various organizations mentioned and by ASA is well established and functioning well. It is to our selfish interest as individuals and as companies to give our support by contributions of time and money, and further by becoming familiar with the standards which exist and by making as full use of them as possible in our own systems. •

How to Check

ANOTHER decided step forward has been taken in the field of photographic standardization through the approval of four American Standards which record agreement on methods of determining performance characteristics and exposure-time markings for camera shutters.*

Aimed primarily at improving the uniformity of shutter speed marking and exposure time performance, these standards define a minimum number of terms important to universal application of the standards, specify test procedures that are acceptable for measuring the basic quantities, and establish certain performance tolerances consistent with good design and production practices. For working details, the standards themselves should be consulted.

Only four quantities have been defined: Total Open Time, Efficiency, Effective Exposure Time, and in the case of between-the-lens shutters, their Maximum Opening.

These definitions give a common language for the measurement and evaluation of those derived values which are important to the ultimate user—the utility, accuracy, and reliability of a camera shutter as a photographic exposure-determining device. Although an infinite variety of other wordings could have been adopted, and many were considered, those finally incorporated in the standards were accepted on the basis of maximum clarity consistent with good usage.

With the quantities defined, the

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* *Note:* The four American Standards just approved are:

1) Method of Determining Performance Characteristics of Between-the-Lens Shutters Used in Still Picture Cameras, PH3.4-1952
2) Method of Determining Performance Characteristics of Focal-Plane Shutters Used in Still Picture Cameras, PH3.2-1952
3) Exposure Time Markings for Between-the-Lens Shutters, PH3.5-1952
4) Exposure Time Markings for Focal-Plane Shutters, PH3.3-1952.

Camera Shutters . . . by Vernon E. Whitman

Dr Vernon E. Whitman, Graflex, Incorporated, Rochester, N. Y., is vice-chairman of Committee PH3 on Photographic Apparatus, and chairman of Subcommittee PH3.1 on Cameras. He represents Graflex, Incorporated, on the PH3 Committee.

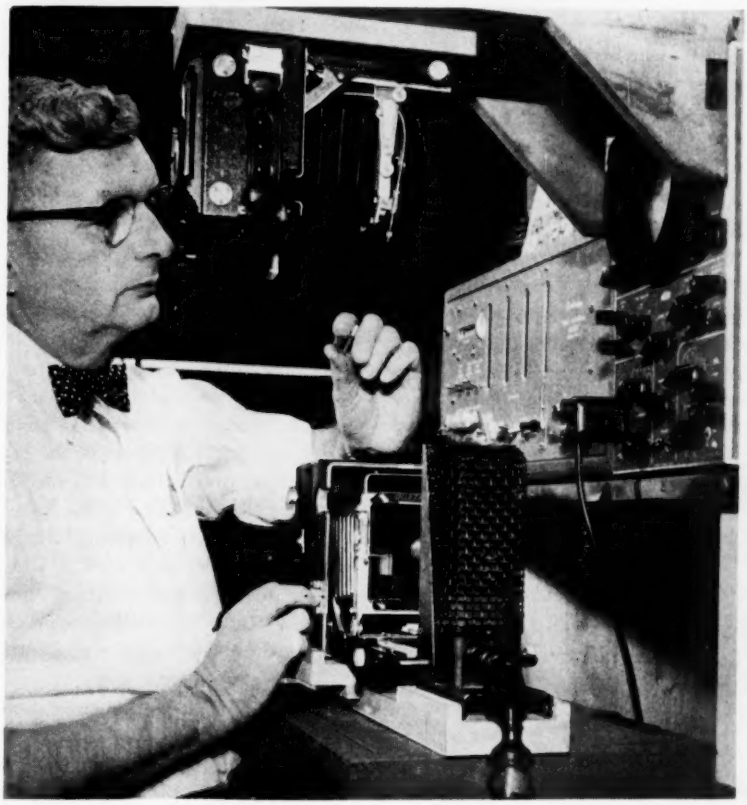
first two standards listed on page 48 are concerned with test procedures capable of measuring these quantities under controlled laboratory conditions. An oscilloscope technique, with special precautions outlined, is recommended for use with between-the-lens shutters. In the cast of focal-plane shutters, a rotating drum type of equipment has been selected. There is no requirement, however, that anyone wishing to check the performance of his equipment against the pertinent American Standard must choose precisely this type of instrumentation. The instrumentation described is recommended because it is known to be capable of reliable results when intelligently used. Other systems, properly handled, are equally capable of delivering the necessary accuracy. Depending on the use to which the results are to be put, however, it may fall to the lot of the measuring organization to prove that a substitute instrument is equivalent to that specified in the standard.

The groundwork was thus laid for the most important decision in this entire shutter standardization effort. The greatest contribution to shutter standardization lies in the fact that the two standards on Exposure Time Markings take a definite stand in determining *which* of many possible scales should be used in marking American Standard Shutters. This historic decision to mark in accordance with the Effective Exposure Time (measured in the case of between-the-lens shutters at their Maximum Opening) required the exercise of courage and compromise in the face of technical and economic facts.

In the early stages of this standardization effort Total Open Time as a direct basis for marking found the nucleus of its support among the representatives of the Air Forces on the committee because of its close correlation with motion-stopping ability. This same emphasis on eliminating the blur from fast-moving images found further support among the more terrestrial photographers who had gone to focal-plane shutters primarily because of their higher top speeds. On the other hand, certain counter-arguments could be listed: These standards were *not* to be written for aerial cameras; no significant quantity of shutters marked in this fashion had ever been commercially distributed; Total Open Time in a focal-plane shutter would be meaningless without specifying the lens aperture to which it specifically applied; and the whole technique of exposure estimation (either based on experience or on the use of meters) would have to be revised if Total Open Time were chosen.

It might be said, therefore, that it was in the weakness of the Total Open Time arguments that the proponents of Effective Exposure Time found their strength. Admitting the over-enthusiasm with which certain manufacturers of shutters had marked their extreme speeds, there was still the very important consideration that Effective Exposure Time was historically the basis on which practically all practicing photographers operated (whether they relied on their experience alone or were aided by a meter). Correctly marked, this system could be more significant in its control of photographic exposure (negative density) than would be Total Open Time. It, too, had its technical weakness, however—it also remained indeterminate until the shutter opening was specified. The "pros," however, appeared to be greater than the "cons." This one weakness was plugged by agreement that in a between-the-lens shutter the Effective

One test in determining performance characteristics—total open time, efficiency, and effective exposure time—of a camera shutter.



Exposure Time marked should be applicable to the performance of the shutter when measured at its Maximum Opening; hence, the need for a definition of "Maximum Opening."

Effective Exposure Time, as defined in these documents, thereby specifies the time scale to be used in marking those shutters (focal-plane as well as between-the-lens) complying with the requirements of the American Standard. Now the same exposure meters, and also experience gained through years of taking pictures, can be used interchangeably between the two types of shutters.

At the beginning of this standardization project, a real opportunity appeared to present itself for making obsolete most of the weird numbers which had appeared on shutters in the past, and to start off fresh with a series having some theoretical justification. The proposed new scale, having a constant ratio of 2 to 1 between adjacent numbers, promptly gained the support of the technically trained committee members and the major producers of focal-plane shutters. On the other hand, some manufacturers of between-the-lens shutters (and especially their sales departments), whose approval would be necessary for any standardization, were convinced that any departure from their long-established numbering systems would confuse the users of their equipment. Hence, the double scales found in these standards.

Compared with the headaches involved in selecting definitions, methods, and scales, the tolerances finally agreed to on Effective Exposure Time gave much less trouble than popularly anticipated. Shutters in general have been excellent. Regardless of who has made them, on what scale basis they have been marked, or who has used them, they can be blamed for very few unacceptable negatives as compared with the photographic rejects directly ascribable to improper light evaluation, inaccurate focusing, grainy emulsions, careless processing, and, most generally, human error on the part of the photographer.

The tolerances which have been adopted apply only at room temperature, at the time of manufacture, and represent the best commercial possibilities under existing and foreseeable conditions of design and manufacture.

The devices to which these standards apply are *not* primarily precision time-interval measuring devices. They have been proven in practice to be capable of the best photographic results ever secured. To make them more accurate would result in cost increases considered completely out of proportion to the photographic benefits which would result.

Although Efficiency is carefully defined and its measurement outlined, no lower limit has been set for its acceptable value. In view of the relationship between Efficiency and the Effective Exposure Time markings, this omission has appeared to some as a temptation or invitation to produce still less efficient shutters in order to gain thereby a higher marked top speed. According to some designers, however, this temptation may find an automatic economic deterrent, especially in the case of between-the-lens shutters. For either type of shutter, it has been obvious that no manufacturer will continue to enjoy a reputation for a good product if he succumbs to this temptation. On the other hand, shutter standardization would have been indefinitely delayed if it had required agreement as to the lower acceptable limit on efficiency.

The Armed Services, as important contributors to this entire standardization project, need equipment which not only operates at temperatures below —40 Centigrade (or Fahrenheit) but must often do so with "room temperature" accuracy. For such extremes, special considerations must apply, not primarily those of the best commercial practice which forms the basis for the tolerances in the American Standards just adopted. To guarantee these tolerances over a wider range of temperatures than those covered would involve disproportionate disadvantages to the average professional and amateur user.

The original project underlying the development of the four new American Standards was sponsored by the Armed Forces in the early 1940's. It represented one of the many clarifications necessary to the efficient pursuit of our war effort. Through the American Standards Association, American War Standards were processed before the end of hostilities for three of the subjects covered in the new standards. These covered methods of determining performance characteristics of between-the-lens and of focal-plane shutters, and Exposure Time Markings for between-the-lens shutters. The War Standards being completely obsolete, two of the new standards represent revisions of them, approved now as full-fledged American Standards.

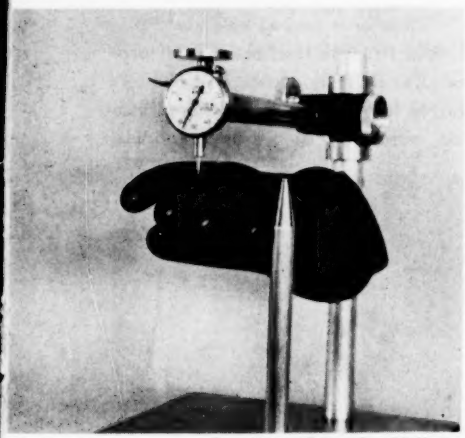
The most important manufacturers and some of the best informed users of camera shutters in the United States, military and civilian, took part in developing these standards, working as a team within the framework of the American Standards Association. They accepted the challenge which had haunted the photographic industry ever since the first shutter carried a "speed scale." These diversified interests which have finally succeeded in bringing into being the four new American Standards include the U. S. Army, U. S. Air Force, U. S. Navy, National Bureau of Standards, Ansco, Argus, Bausch & Lomb, Bolsey, Fairchild, Graflex, Ilex, Kodak, Wollensak, and the Photographic Society of America.

As with all American Standards, these four relating to camera shutters are purely optional in their use. They are in no sense mandatory unless adherence to them is specifically advertised or contracted for directly between purchaser and seller. As far as the photographic public is concerned, therefore, until some manufacturer publicly affirms that his particular shutter complies with one of these standards, there is no implication that shutters not so specifically identified bear any relationship with these published standards.

Also in common with all other American Standards, these are live documents and come up for review automatically every five years — sooner if the need becomes apparent. At that time, they may be reaffirmed, revised, or completely withdrawn.

A First Line of Defense

by Gordon Thompson



Consolidated Edison Co of N.Y., Inc

Testing rubber gloves for thickness—new standard tightens thickness requirements.

A LAYER of rubber only one-sixteenth inch thick may seem like a flimsy "first line of defense" against a voltage of several thousand volts, but if that rubber is tough and elastic, the lineman does his work with confidence and safety. Such qualities are specified with care in the recently revised and published American Standard Specifications for Rubber Insulating Gloves (ASTM D120-52T; ASA J6.6-1952). The tensile strength of this rubber must now be greater than 2500 psi, more than 50 percent higher than was required in the old specification now superseded. At the same time, there is no relaxation in the requirement for high elasticity, and the loss in strength and stretch must not exceed 25 percent of the original values after exposure to the conventional aging tests in air oven and oxygen pressure chamber.

Electrical test requirements have also been strengthened. In the first place, the constant trend toward "working lines live" at the higher operating voltages is recognized in the new specification by setting up three classes of gloves with progressively higher levels of insulating ability, indicated by the corresponding proof test voltages of 10,000 volts, 15,000 volts, and 20,000 volts for Classes I, II, and III, respectively. Although these test voltages will provide an adequate factor of safety against operating voltages in most cases, further assurance of high dielectric strength is secured by specifying breakdown or puncturing voltages. These range from twice the proof-test voltage for Class I gloves to one and one-half times proof-test voltage for Class III gloves, the ratio being 1.67 for the Class II gloves.

There has been some tightening, too, in the variations in thickness allowed. This will call for somewhat more careful attention to manufacturing procedure, and should thereby insure a higher quality of product.

Taken in all its requirements, it is believed that the new specifications for rubber insulating gloves will put on the lineman's hands just about the finest quality of insulating gloves that it is possible to manufacture—which is, after all, the intended purpose for this article of electrical safety.

As in the associated American Standard specifications,[1] the present specifications carefully disclaim any responsibility for relating the prescribed proof-test voltage to the operating voltage at which the given class of glove may safely be used. That relationship must be the responsibility of the user since, given gloves which meet the test requirements of the specifications, the conditions of use define the hazards. (See STANDARDIZATION, April, 1950, p 96.)

The tough and flexible rubber called for by the new specifications, nevertheless, will not be able to resist, of itself, the slashing action of being dragged across the sharp burr at the end of a cable strand. That would be asking too much. Hence, the general use of leather protector gloves worn over the rubber gloves for the needed mechanical protection. This practice is referred to in the glove specifications and a standard specification for such leather protector gloves is now in ballot in ASA Sectional Committee J6 which deals with items of protective equipment.

A person who has never spliced a pair of wires with arms and hands encased in protecting rubber can little appreciate the impatience, irritation, and recklessness that can be generated in many men by bulky and unyielding rubber equipment. But the problem is real and potent. Hence the steady pressure for greater flexibility and the reason for various levels of insulation, with greater flexibility secured where the electrical stress will sanction it. It is to be expected that specifications will presently be forthcoming for other items of electrical protective equipment in which two or more levels of insulation will be recognized.

American Standard Specifications for Rubber Insulating Gloves, ASTM D 120-52 T; ASA J6.6-1952, has been published by the American Society for Testing Materials, sponsor for the project. Copies are available at 25 cents each.

[1] Rubber Insulating Line Hose (ASTM D1050-49T; ASA J6.1-1950); Rubber Insulator Hoods (ASTM D1049-49T; ASA J6.2-1950); Rubber Insulating Blankets (ASTM D1048-49T; J6.4-1950); and Rubber Insulating Sleeves (ASTM D1051-49T; J6.5-1950).

Mr Thompson, chief engineer of the Electrical Testing Laboratories, is chairman of ASA Sectional Committee J6 on Rubber Insulating Equipment.

Electric utility companies protect linemen by rigidly testing rubber gloves. For test, gloves are submerged in tank of water. Water is also placed inside, then heavy electric charge is shot down chains suspended inside. Con Edison tests each pair of gloves every two weeks.

Consolidated Edison Co of N.Y., Inc

Technicians here analyze pile of linens that cost a large hotel more than $1,000 through rapid deterioration. Trouble was caused by faulty laundering practices. Hotels asked for standards as guide for use, cleaning, and laundering.

Photos used with this article courtesy of American Hotel Assn.

Tensile strength tests are part of procedure used by Hotel Association's textile testing laboratory in determining efficiency of washing formula.

Better Service—Goal of Textile Program

A conference of 39 producer, consumer, distributor, and technical groups has asked the American Standards Association to initiate a project for development of standards for the performance of textile fabrics. The project will include articles purchased and used by hotels, hospitals, and other institutions.

The American Hotel Association, which originally proposed the project, explained that standards are needed to define the performance characteristics of fabrics that go into such items as towels, hotel uniforms, upholstery and drapery materials, table linens, overalls, and work shirts. Test methods are needed to check whether the fabrics meet the standard requirements.

The work will be similar to that done on the American Standards for Rayon, Acetate, and Mixed Fabrics. These standards define such requirements as tensile strength, colorfastness, washability, and similar characteristics, as needed for different specific uses.

Hotels buy nearly 14 million towels, 6 million sheets, and 5 million pillowcases every year. On an average day, they send to the laundry more than 4 million towels and 2 million sheets.

At present institutional buyers find it difficult to know what service they can expect from the fabrics they buy. Upholstery fabrics that would give long service in an inside hotel room may fade badly when exposed to the sun by an outside window. Blankets that are strong and resist tearing when pulled one way sometimes tear easily when pulled the other way. Waitresses' dresses may shrink or fade when laundered.

The American Hotel Association runs a research laboratory which tests products and equipment purchased by its 6,000 member hotels. Its work consists of checking samples of materials before purchase to determine their serviceability for specific uses and checking materials and equipment after purchase to determine the reasons for any failures. For this work, standard specifications, test methods, and performance requirements are needed, it was explained.

Representatives of the cleaning, dyeing, and laundering industries participated in the discussions and expressed full support of the project. They indicated particularly the need for greater knowledge of the end uses

After member hotel washes test pieces 20 times, they are evaluated for whiteness and strength. Photoelectric cell is here used to check whiteness retention.

to which fabrics are to be put and the necessity of more complete instructions as to conditions under which the articles should be washed or dry cleaned.

In expressing their approval of the project, representatives of the American Hospital Association called attention to the fact that American Standards for sheets and pillowcases have been useful to institutional buyers. A survey conducted recently shows that they are now in wide use. Standards developed under the procedures of the American Standards Association represent national agreement rather than the viewpoint of a single organization.

Representatives of consumer groups —the American Home Economics Association, the American Association of University Women, the American Federation of Labor, and the Congress of Industrial Organizations—spoke in favor of the proposed project. They hoped that while the standards are developed for institutional purposes they can be adapted to fabrics for home use. They were assured that development of standards for institutional use would make it easier to develop standards for fabrics for the relatively milder wear given in homes.

The conference recommended that the American Hotel Association undertake the administrative responsibility for the project.

It also recommended that standards be developed for the finished articles wherever possible.

It was explained that use of any standards developed, as in the case of all American Standards, would be entirely voluntary. These standards would be given wide publicity and distribution, but their actual use in the fabrics and end products would come about by their voluntary acceptance by the manufacturers and their use by reference in the orders of commercial purchasers and ultimate consumers. The Hotel Association indicated that it would recommend use of the textile standards to its 6,000 member hotels, as it will do also in the case of the American Standards for Rayon, Acetate and Mixed Fabrics, now in press. •

Flammability Test to Prevent Fabric Fires

A Test Method for Flammability of Clothing Textiles, L14.69-1952, has just been approved as American Standard. The American Standards for Rayon, Acetate, and Mixed Fabrics which are now being published also include the flammability requirements of this newly approved standard.

The new standard has Class I flammability requirements which are described in the test as follows:

Class 1. Normal flammability. These textiles are generally accepted by the trade as having no unusual burning characteristics:

"(*a*) Textiles that do not have a raised fiber surface, that have a time of flame spread in the test of more than 4 seconds.

"(*b*) Textiles having a raised fiber surface, that have a time of flame spread in the test of more than 7 seconds or that burn with a surface flash (time of flame spread less than 7 seconds), provided the intensity of the flame is insufficient to ignite or fuse the base fabric."

The other two classes of flammability are: Class 2—covering those textiles recognized by the trade as having flammability characteristics between normal and rapid and intense burning; and Class 3—covering those textiles recognized by the trade as being unsuitable for clothing because of their rapid and intense burning.

The flammability standard was developed by the American Association of Textile Chemists and Colorists. It has also been adopted by the American Society for Testing Materials, and is similar to the new Commercial Standard CS191-53, which took effect January 30. The AATCC and the ASTM are sponsors of the ASA project on textile test methods.

The American Standards for Rayon, Acetate, and Mixed Fabrics, to which the flammability requirements are applicable, were developed under the sponsorship of the National Retail Dry Goods Association. NRDGA three years ago saw not only the necessity of textile fabric standards, but also the need for flammability provisions for wearing apparel to safeguard the public against this hazard.

Announcement of its approval emphasized that the American Standard test method for flammability constitutes both a safeguard to the public and an education of the public about these safeguards. Their application is voluntary and is now in the hands of the distributing industry, the converters, the ready-to-wear industry, and the textile mills of the country.

Healy Named President by Standards Engineers

Officers for 1953 have been elected by the Standards Engineers Society, which is also completing approval of a Constitution and By-laws.

William L. Healy, General Electric Company, Philadelphia, is president, with Madhu S. Gokhale, Radio Corporation of America, Camden, N. J., as vice-president. Fred M. Oberlander, also of Radio Corporation of America, Camden, is secretary. Harold J. Nugent, Ohio Nut & Bolt Company, Philadelphia, is serving as treasurer.

In addition to the officers, the following Directors-at-large have been elected for the coming year: John E. Emmett, The Bristol Company, Waterbury, Conn.; George K. Burnett, Sperry Gyroscope Company, Great Neck, N. Y.; and Herbert G. Arlt, Bell Telephone Laboratories, Murray Hill, N. J.

Plans are now under consideration for organization of regional sections, with New York as one of the sections being considered.

The January meeting of the Society, held in Philadelphia, January 26, heard C. C. Hurlburt, Chief Standards Engineer, Piasecki Helicopter Corporation, speak on "Standardization in the Aircraft Industry."

Proposed Starter Standards—

For more satisfactory performance of fluorescent lamps

by George A. Freeman

WITH fluorescent lamps, the full benefit of standardization cannot be achieved until separate standards are worked out for all the components used in their operation. Standards for fluorescent lamps themselves and for ballasts for use with these lamps have been published. Now performance standards for starters for fluorescent lamps and standard methods of testing starters are published for trial and use. Standards for bases and lamp holders remain to be published to complete the job and will be provided by Sectional Committee C81 working under the procedure of the American Standards Association. Manufacturers use these standards to be sure their products will be interchangeable with similar products of other manufacturers and able to give expected performance and reliability.

Various types of starters came into being beginning soon after fluorescent lamps were introduced in the late 1930's. For a short while, starter elements were built into ballasts, until it was realized that starters often had to be replaced before the ballasts. It became economical to mount a plug-in type starter where it would be accessible for easy replacement. Most starters use a temperature-sensitive strip of bimetal to open or close switch contacts when heat is applied. Experience has shown that the contacts of a switch, like moving parts on any machine, are subject to wear and eventually require replacement.

The first separate starter was a manually-operated switch. This was quickly improved upon by an automatic current-operated starter. This type used a heater resistance connected in series with the lamp to operate a bimetal switch connected in parallel with the lamp and required four separate connections. It is interesting to note that a student employed on a summer job invented the glow starter. This was a major improvement since only two leads were necessary and a glow starter wastes no power after completing its starting function. Through the years other refinements have been made to lock out the starter after a lamp failure, to avoid the annoyance of lamp blinking and possible damage to the ballast. All of these types of starters still exist today.

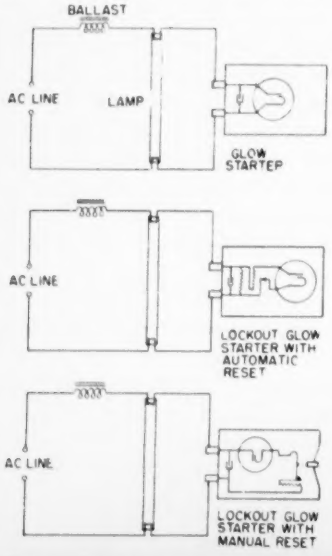
During the past ten or twelve years a considerable amount of standardization of starters has been accomplished by the industry. This is recorded in specifications by the National Bureau of Standards, Underwriters' Laboratories, Certified Starter Manufacturers, and others. The new American Standards, developed by a committee on which all these groups and others concerned are represented, have been prepared using such specifications as a basis and working out problems and inconsistencies that had developed.

The act of publishing standards does not mean that the work on standards is done. The trial and use of standards may bring out problems that could not be foreseen by the industry representatives in the various ASA committees. Such problems may occur with the introduction of new types of lamps or ballasts. Those who apply standards will offer suggestions for changes that will finally result in the complete integration of the standards for fluorescent lamps, holders, ballasts and starters.

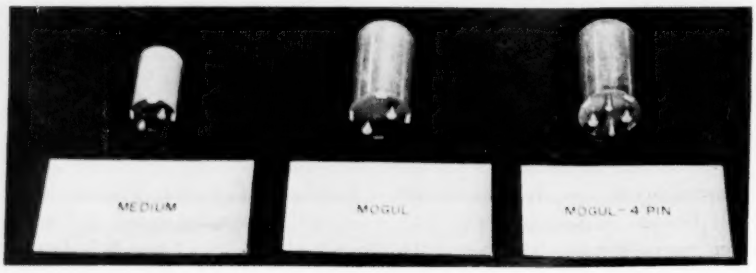
Comments are invited on the *New Proposed American Standards for Fluorescent Lamp Starters.*—

- Proposed Standard Specification for Fluorescent Lamp Starters, C78.180
- Proposed Standard Method for Test of Fluorescent Lamp Starters, C78.181

Circuits for glow-switch type starters covered by C78.180 and C78.181.



Typical starters for which proposed standards provide definitions, nomenclature, dimensions, marking, and performance requirements.



Mr Freeman is a Section Engineering Manager in the Lamp Division of Westinghouse Electric Corporation at Bloomfield, N. J. He is responsible for development of vapor discharge and photoflash lamps including fluorescent starters.

He is chairman of Subcommittee C78-3 on Starters for Fluorescent Lamps and Methods of Testing Starters. He is the author of several papers published in the journals of the American Institute of Electrical Engineers, Illuminating Engineering Society, and the Westinghouse Engineer.

Standards From Other Countries

Members of the American Standards Association may borrow from the ASA Library copies of any of the following standards recently received from other countries. Orders may also be sent to the country of origin through the ASA office. The titles of the standards are given here in English, but the documents themselves are in the language of the country from which they were received. For the convenience of our readers, the standards are listed under their general UDC classifications.

543 Analytical Chemistry

Czechoslovakia	*CSN*
Determination of nitrogen	44 1356
Determination of carbon dioxide	44 1357

614.84 Fire, Fire Brigade

Sweden	*SIS*
Packing for hose coupling (revised)	SMS 1183

615.47 Medical Instruments, Apparatus

Sweden	*SIS*
Clinical thermometers (revised)	CSB 89

620.1 Testing

Portugal	*IGPAI*
Typical standard for method of analysis and test	P 25

621.2 Water Power

Czechoslovakia	*CSN*
Water turbines	08-5010

621.3 Electrical Engineering

Sweden	*SIS*
Starting, controlling and protective gear for electric machines (revised)	SEN 5-1948
Mercury rectifiers (revised)	SEN 28-1941

621-46 Tubes

Australia	*A.S.*
Steel tubes and tubulars (suitable for screwing with British Standard Pipe Threads)	B.105-1951

621.595 Gas Cylinders

South Africa	*SABS*
Code of practice relating to the filling, handling, storage and transportation of compressed gases in steel cylinders	O19-1951

621.64 Devices for Conveyance and Storage of Gases and Liquids in General

Czechoslovakia	*CSN*
Set of 32 standards for different cocks, valves, etc from the series	13-3000 and 13-4000
Set of 9 standards for different gas cocks and fittings, series	13-7400
Set of 3 standards for steel drums and accessories, series	16-0100
Set of 8 standards for flanges, series	13-1035

Yugoslavia	*JUS*
Gas and water pipes	C.B5.211
Couplings for gas and water pipes	M.B6.306
Elbows for gas and water pipes, weldable	M.B6.821

621.798 Packing and Dispatch Equipment

Australia	*A.S.*
Fibreboard containers for butter (for export purposes)	A.S. No.N.21, July, 1952

621.8 Machine Parts, Hoisting and Conveying Machinery, Power Transmission, Means of Attachment, Lubrication

Canada	*CSA*
Established lists of unfinished machine, carriage and plough bolts and nuts	B34-1952

Czechoslovakia	*CSN*
Fluted nails	02 2190/1
Screw nails	02 2195
8 standards for different rivets	02 2303;-2313;2316;-2330/1;-2381;-2390
22 standards for different types of wrenches, series	23 0600
5 standards for different keys and key ways	3021036/7;-1382/3;-1385
Set of 9 standards for rubber belt conveyors	26-3101/-09
Set of 6 standards for table-type conveyor	26-3481/-85,26-1211
Rubber belts for conveyors	63-5501
Design of steel crane structures	27-0310

Italy	*UNI*
Reference table of different types of radial ball bearings and respective UNI Standards	3063

Sweden	*SIS*
V-belt pulleys; mean diameters and gear ratio	SMS 983
Four-way loading pallets (revised)	SIS 71 00 01

624.21 Bridges

Canada	*CSA*
Specification for steel highway bridges	S6-1952

625.1/6 Railways and Tramways

Czechoslovakia	*CSN*
3 standards for general technical requirements for rolling stock	28 0103;-0110;-0301

Italy	*UNI*
Railway rolling stock, terminology	3191
Light rails, fish plates, bolts, etc General table and details (9 standards)	3224 thru 3232
Different types of street car doors	3174,3175,3176
Three-truck articulated tramway motor car	3192

628.3 Sewage Water

South Africa	*SABS*
Specification for the quality of effluents discharging from municipal, industrial, mining and private enterprises	247-1951

629.11 Land Vehicles, Transport Engineering

Czechoslovakia	*CSN*
7 standards for different types of wheel rims of bicycles, automobiles, trucks, etc	30 3710/2;-3715;-3720/2

635 Horticulture

Sweden	*SIS*
8 revised standards for different Swedish grown vegetables	750051 thru 750058

637 Produce from Domestic Animals

Austria	*ÖNORM*
Feathers for filling pillows and mattresses	K 3000

Germany	*DIN*
Packaging of butter. Standard sizes	10081
Butter and method of packing and labeling it (Five standards)	10069, 10075, 10079, 10082/3

Israel	*SI*
Common cow milk	55

Netherlands	*N*
Seamless copper milk pipes and fittings	975
Determination of standard degree of acidity of milk	N-913
Determination of standard degree of acidity of cream	V 1106

South Africa	*SABS*
Specification for rennet	272-1950

Spain	*UNE*
Hen eggs. Classification, packing, transportation and preservation	34500
Milk, dry, powdered	34101

United Kingdom	*BS*
Methods for the chemical analysis of cheese	770:1952
Milk piping and milk pipe fittings	1864:1952
Methods for the chemical analysis of butter	769:1952

651.4/.7 Office Administration

Germany	*DIN*
Envelopes, plain	678
Window envelopes	680

Netherlands	*N*
Letter folders and portfolios	690

Portugal	*IGPAI*
Size of papers, series A general table	P-4
Size of envelopes, general table	P-7

Cards and card cabinets	P-10
Note pads	P-11
Envelopes and method of addressing	P-13
"Window" envelopes	P-14
Sizes of papers	P-17
Size of paper A4 foolscap and quartos, first and following sheets	P 5, P 6, P 8
Letter-cards, standard sizes	P 15, P 20, P 24
Filing material	P 24

Union of Soviet Socialist Republics — ***GOST***

Perforated cards, 45 and 80 columns, for accounting. Analytical machines	6198-52

659 Propaganda, Advertising

Sweden — ***SIS***

Posters, rough and trimmed sizes	SIS 73 16 15

662.6/9 Fuel Industry

Czechoslovakia — ***CSN***

Sorting of solid mineral fuel	44 1301

664 Preparation and Preservation of Solid Foodstuff

Czechoslovakia — ***CSN***

Set of 8 standards for different brands of bread and bakery products, series	56-1000

South Africa — ***SABS***

Specification for canned poultry	275-1950

665 Oils, Fats, Waxes

Sweden — ***SIS***

Distillation tests	SIS 15 02 17

666 Glass and Ceramic Industry, Artificial Stone

Australia — ***A.S.***

Dental laboratory plaster	T.5-1951

South Africa — ***SABS***

Standard specification for sand-lime (calcium silicate) bricks	285-1951

"Standards Boards" to Administer ASA Work

Correlating Committees of the American Standards Association are now to operate under simpler and more uniform new names, according to official action of the Standards Council. The term "board," chosen instead of "committee," indicates the administrative and supervisory operations with which these subsidiaries of the Standards Council are charged. The changes are as follows:

Former Name	New Name	Abbreviation
Building Code and Construction Standards Correlating Committee	Construction Standards Board	CSB
Chemical Industry Correlating Committee	Chemical Industry Advisory Board	CIAB
Consumer Goods Committee	Consumer Goods Standards Board	CGSB
Drawings and Symbols Correlating Committee	Graphic Standards Board	GSB
Electrical Standards Committee	Electrical Standards Board	ESB
Highway Traffic Standards Committee	Highway Traffic Standards Board	HTSB
Mechanical Standards Committee	Mechanical Standards Board	MeSB
Mining Standardization Correlating Committee	Mining Standards Board	MiSB
Miscellaneous Projects Correlating Committee	Miscellaneous Standards Board	MSB
Photographic Standards (Correlating) Committee	Photographic Standards Board	PSB
Safety Code Correlating Committee	Safety Standards Board	SSB

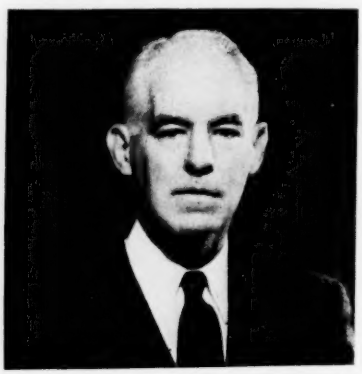
The Standards Council has assigned to each correlating committee responsibility for standards work in its specific field. As successor to the corresponding committee, each Standards Board has responsibility for reviewing all requests for new projects submitted to the American Standards Association and has the authority to initiate projects, approve personnel of committees, and appoint sponsors. It supervises the scope of projects to prevent overlapping of work and reviews the personnel of committees to assure that all groups concerned have an opportunity to take part in developing an American Standard. It reviews new standards submitted to ASA for approval to make sure a consensus has been reached and passes along its recommendations to the Standards Council or to the Board of Review, acting for the Council, for action. All actions by the Standards Boards are subject to review by Standards Council.

ASA STAFF MAN IN WASHINGTON

A. C. Hutton has recently joined the staff of the American Standards Association as ASA's Washington representative. His headquarters will be at the National Bureau of Standards, where his duties will include working with the Bureau's Building Technology Division on its projects on building code standards and the unification of building codes.

Mr Hutton's professional career has been in the field of Fire Prevention Engineering. He has served in this profession for over 25 years with the Fire Protection Section of the National Bureau of Standards. His work has consisted of research and testing of building materials and fire extinguishing and alarm equipments. His investigation of the phenomena of self-heating and ignition of materials handled in commerce has added materially to the fund of knowledge in this field.

Mr Hutton has served on several of the committees concerned with the drafting of Federal Specifications, and as a member of the National Fire Protection Association has been active in committee work in that organization. He has also served on the Subcommittee for Aircraft Fire Prevention of the National Advisory Committee for Aeronautics and has made contributions toward several projects sponsored by this committee. As a member of the Federal Fire Council he served as the chairman of the Council's Committee on Apparatus and Devices. He is a member of the Society of Fire Protection Engineers.



A. C. Hutton

Recent Rulings on Unusual Accidents

The following interpretations have been handed down by the Committee of Judges of ASA Sectional Committee Z16 on accident statistics. They serve as a guide to companies who want to know how to count injuries due to unusual accidents in their safety record.

The American Standard Method of Compiling Industrial Injury Rates, Z16.1-1945, offers generally accepted rules for keeping track of a company's safety record. Monthly compilation of a company's accident toll shows at a glance when some change in operations or some unforeseen new hazard has caused a jump in the injury rate. Immediate action then can be taken to eliminate the hazard.

Safety engineers are invited to obtain interpretations of the standard by sending the facts on doubtful cases to the American Standards Association. Reprints of all the published decisions can be obtained from ASA.

Case 184. No decision because of insufficient information.

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Case 185. The night watchman was making his rounds through a lot at the north end of the company property where trucks were parked. This was a fenced-in area with a gate that had been damaged in a recent storm and could not be locked. As this watchman approached the area from the south, he did not notice two men stealing sugar from one of the trucks until he was upon them. One man turned and struck him, rendering him unconscious for at least twenty minutes. The two men escaped without being apprehended.

Although this employee was confined to the hospital for a few days, the company did not feel that this should be classified as a lost time accident. It believed, rather, that it should be considered assault and battery. The company held that this man's injury was not caused by a hazard existing within the plant, but by an outside source, i.e., trespassers on private property. The company, therefore, was of the opinion that although this injury occurred in the line of duty, it was intentional and not accidental in nature, and was caused by outside forces beyond their control.

The committee decided that this injury should be included in the Industry Injury Rates as a lost-time injury, and that the actual days lost should be included in the time charges. The committee believed that the assault on this employee arose entirely out of the performance of his duties, and not out of any personal animosity. The thieves undoubtedly attacked him because they thought he would put in an alarm if he let them get away. The hazard of coping with thieves appeared to the committee to be a part of a night watchman's job.

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Case 186. In 1941, while employed by Company A, a workman sustained a fractured neck as a result of which he was hospitalized for several months. After leaving the hospital he continued to suffer great pain and was unable to work. In 1950 he was adjudged totally and permanently disabled under the State Workman's Compensation Act and was placed on the pension rolls. At this time he was warned that he should never again do any hard work and that his condition was so critical that even to ride in a hard-riding or jostling vehicle, such as a truck, could prove fatal.

In 1952 this workman, still receiving his monthly pension, applied for work as a logger with Company B, which had no knowledge of the previous accident. This company makes a practice of asking each new employee if he has ever received a disability rating under the State Workman's Compensation Act. In the present case the workman replied that he had never received such a rating. Accordingly, he was put to work. About a week after going to work for Company B the workman was struck across the neck by a line and died of a fractured neck. There is some question as to what effect a similar blow would have had on a person with no previous injury to the neck.

The State Department of Labor and Industries has ruled that once having been declared permanently and totally disabled, and having been compensated therefor, the workman could not again come under the Act and that, therefore, no costs were chargeable against Company B as a result of the workman's death.

Granted that Company A assessed the statistical charges against their rates, as required by the American Standards, the question then arises as to whether Company B should include the accident and statistical time loss charges in their rates, both having already been charged once by Company A. If so, would this not result in the industry as a whole being charged with two permanent total disabilities and statistical time loss charges of 12,000 days for one workman? In other words, can one workman become totally and permanently disabled more than once?

After considerable discussion, the committee came to the conclusion that the fatality of this employee should be included in the Industrial Injury Rates of Company B with a time charge of 6,000 days. The Committee of Judges believed that their primary function was to interpret the standard as written. Under the present wording, they believed that there was no alternative other than to count this case. They recalled several possible situations where time charges for any one individual, from a sequence of injuries, might total more than 6,000 days. The committee did not believe that this situation had been considered or discussed by the Z16 committee, and have suggested that this subject be given consideration whenever this standard is revised.

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Case 187. An elevator operator elected to go across the street from his place of work in an office building, to purchase a package of cigarettes during his lunch hour. On his way back to the building, he was running to get out of a hard rain. As he approached the entrance to the building he slipped and fell, striking the glass panel in the entrance door. He suffered a lacerated forearm which required several stitches.

The company did not have any control over where this employee might spend his lunch hour. The company wished to know if such an injury should be included in the Industrial Injury Rates.

The committee decided that this injury should not be included in the Industrial Injury Rates on the basis that this employee had left his place of employment when he went outside the door of the building. He had been outside of his employment on a personal errand on his noon-hour when the accident occurred, since he had slipped, causing his injury, before he had re-entered the building.

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Case 188. During the day, carpenters were working in the Beater and Jordaning Room of a paper mill, using a small portable jointer in their work. At the close of the day the carpenter moved the jointer away from the area in which it had been used and placed it against the column, disconnecting and coiling the electric cord around the jointer. About six hours later the Beater Engineer's Helper decided to experiment with the jointer. He moved it away from the column against which it was placed, connected it up, turned it on, and attempted to plane a small piece of oak. Being unfamiliar with the operation of the equipment, the employee was working it backwards and the piece of wood was kicked out from under his hand and his fingers dropped into the jointer blade. The employee did this without authority and without the knowledge of his supervisor or the Beater Engineer. The injury involved the severe laceration of three fingers and a thumb on the right hand.

After considerable discussion, the committee decided that this injury should not be included in the Industrial Injury Rates. The members were of the opinion that this employee was in no way furthering the interests of the company, and that he had actually taken himself out of his employment when he attempted to operate this jointer.

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Case 189. An employee was placing a crated carboy of purple dye on the stock room shelf when the bottom of the crate broke. The carboy of dye solution fell to the floor and shattered, which resulted

in splashing a large quantity of dye solution over the employee's legs and also over the legs of his foreman. The dye completely discolored the legs of both employees from the knees down. This was a considerable nuisance, but had no harmful effect.

Both employees continued to work for the balance of the week. Over the following weekend, the employee attempted to clean the dye from his skin, by soaking his legs in a hot water solution of Clorox. As the result of this treatment, the employee suffered severe second degree burns to such an extent that he was unable to work during the treatment and healing of these burns.

The company noted that both this employee and his foreman had been able to work after being splashed by the dye, and the employee only lost time as a result of the burns from the Clorox. The foreman continued to work with no lost time as a result of being splashed with the dye solution. The company wished to know if the lost time from the employee's burns should be considered an industrial injury.

The committee decided that this injury should not be included in the Industrial Injury Rates. The members did not believe that the fact that the dye got on this employee's legs should cause the case to be considered an injury, and they did not believe that his washing at home with Clorox should be considered as in the course of and arising out of employment.

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Case 190. The injured employee, classified as an outside salesman, normally worked out of a local office and was paid a salary plus commissions for sales. He drove his personal car and was paid mileage by the company. One morning he drove to the Division Headquarters of the company, about 100 miles away, to attend a company sales meeting. He was driving his own car.

The meeting adjourned between 4:30 and 5:00 P.M., at which time the group of salesmen and a sales representative from another company visited a local club, and later had dinner. The group broke up about 9:00 P.M. Later in the evening the injured (alone) stopped at three taverns located a few miles outside of town but on the route home. He tried to cash a personal check at these places, but was not successful.

About 1:00 A.M. (the next morning) the employee was found unconscious a short distance from his car which had skidded off the highway at a curve and rolled over several times. The employee was apparently on his way home, the accident occurring about 25 miles from the Division Office Headquarters. He was seriously injured. The activities and exact whereabouts of the injured between 9:00 P.M. and 1:00 A.M. are not known. The company wished to know if this employee should still be considered in the course of employment, driving his own car, the next morning at 1:00 A.M., and should the injury be classified as an "industrial injury."

The committee decided that this injury should not be included in the Industrial Injury Rates. Some of the members commented that it was necessary to make a reasonable interpretation on whether this salesman was on duty when he was injured between 9:00 P.M. and 1:00 A.M. the following day. Since this employee had only traveled 25 miles from the place of the meeting, the members concluded that this employee had taken himself out of his employment at the time of his injury.

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Case 191. The duties of a vulcanizer helper required him to help load and unload vulcanizers, and perform other duties in connection with vulcanizer operations. In the area where these vulcanizers are located there are also lead strippers used to strip the lead coating from cable after the curing operation. The operator of one of these lead strippers which was in operation, shut his stripper down and went to the smoking area.

Shortly afterwards the lead stripper operator heard a yell and saw the vulcanizer helper at his lead stripper yelling for help. The lead stripper operator ran over to his machine and found the vulcanizer helper with three fingers of his left hand caught in the in-running rolls of the stripper. The stripper operator immediately turned the rolls open and released the victim. Injured sustained lacerations and contusions of the first, second, and third fingers of his left hand, resulting in amputation of the first finger at the second joint.

"None of the injured's assignments called for him to have anything at all to do with the lead stripper. Injured stated that he was trying to practice on the lead stripper as he knew that there would be openings eventually for stripper operators and he wanted to get some experience. He said he had done it several times before but had never been seen by any supervisor or foreman. He had not been assigned to the stripper as a trainee. His fingers were caught in the rolls as he had his fingers extended instead of using a closed fist. Injured felt he was half wrong in doing what he did, but, also felt he had some right in trying to learn a better job. The company wished to know whether or not this should be considered an industrial injury.

The committee decided that this injury should be included in the Industrial Injury Rates. The members agreed that this was definitely a border line case, but came to the conclusion that despite the lack of company authorization at the time of injury, this employee was engaged in a learning activity in an attempt on his part to become a more valuable employee to the company.

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Case 192. A welder had just completed five hours of regular scheduled work on Saturday (7:00 A.M. to 12:00 noon). After he left the building, but was still within the fenced property of the company, a fellow employee flicked his cigarette. Ashes from the cigarette entered the welder's eye.

He felt no immediate pain, but later his eye became troublesome. He consulted an eye specialist. The doctor advised the man to take three or four days off from work, which he did. The injured employee returned to work and there was no permanent disability of the eye. The company wished to know if this should be considered as an industrial injury. The committee decided that this injury should be included in the Industrial Injury Rates. Some of the members remarked that if in a similar situation the employee had received a cinder or other foreign body in his eye before going out of the plant gate, he would still be considered to be within his employment and the case would be included in the Rates. They did not believe that an exception should be made in this case.

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Case 193. A company asked for an interpretation of Section 3.4.3 of the standard, concerning "Hospitalization for Observation." It submitted two examples which are included in this case and in case 194. In this case, the employee was hit on top of the head by a casting suspended by a crane. The physician's diagnosis was, "2-inch laceration left pariental area, deep." After examining, suturing, and dressing the wound, the physician advised the patient to remain at home to watch for any residual effects. The employee lost two days from work. The physician certified that the patient could have returned to work, but was kept at home to watch for possible further developments.

The committee decided that this injury should not be included in the Industrial Injury Rates. The committee discussed whether or not observation at home could be considered "Hospitalization for Observation." Some of the members called attention to the fact that paragraph 3.4.3 did not specifically state that the employee had to be in a hospital for observation purposes.

The committee came to the conclusion that after proper instruction by a doctor, it was possible for a lay person to make the proper observation during a 48-hour period in order to detect residual effects from an injury. The committee called particular attention to the fact that the physician had made a definite statement that the injured employee could have returned to work without lost time.

Case 194. This was a second example, submitted with case 193. In this case an employee was injured when a chip flew off a forging (20 feet distant) and struck a glancing blow across his right forehead. The physician's diagnosis was, "Diagonal laceration 2 inches long right forehead."

After suturing and dressing the wound, the physician advised the patient to remain at home to watch for any residual effects. The employee lost three days (two work days plus a Sunday) from his work. Here again the attending physician certified that the employee could have returned to work but was kept at home to watch for possible further developments.

As in Case 193, the committee decided that this case should not be included in the Industrial Injury Rates for the same reason as given in Case 193. Since there was apparently no work for this employee on Sunday, and since the doctor had stated that the employee could have returned to work on Friday, it did not appear that the employee's absence from work on Sunday made any difference.

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Case 195. A Government employee was a passenger on an Air Force C-47 airplane, in company with other civilians and Air Force personnel, when the accident occurred. Shortly after take-off, the right engine of the airplane caught on fire and, on orders from the pilot, the Government employee and the others bailed out. The jump was made from an altitude of about 9,500 feet to ground at about 4,500 feet above sea level. The employee's parachute was slow in opening and never completely opened because of a shroud line being out of place and over the top of the parachute canopy. As a result of this condition, he struck the ground with much greater than normal velocity and was rendered unconscious for a short period of time. He sustained injuries to the head, neck, and lower ribs. Following the accident he was able, while receiving treatment, to continue his regular duties without loss of time from work until last month when his condition became worse and it was discovered that there was a blood clot between his skull and brain, and successful surgery was performed.

The airplane on which the employee was a passenger was in use by the Air Force in a shuttle service. To augment the commercial and contract services, civilians had to have official travel orders and be on the passenger list before boarding one of these flights. While the normal travel for this employee would have been via a commercial or contract carrier, occasionally he was required to make use of Air Force shuttle plane service.

The question was whether or not this injury should be excluded from the rates on the basis of paragraph 2.7 of the standard which provides for the exclusion of injuries which happen as a result of an accident to a common carrier type of transportation. The Committee decided that this injury should be included in the rates. The members of the committee emphasized that paragraph 2.7 of the standard applied to common carriers. They defined a common carrier as one which is available for hire to anyone who wishes to pay the fare. Since the Air Force plane was definitely not available to all members of the public, the committee believed that the Air Force plane in this shuttle service should not be considered to be a common carrier.

Announcing New Books . . . .

•The Final Report of the Anglo-American Council on Productivity. (UK Section of the Council:—21 Tothill Street, London, S.W. 1; USA:—Office of Technical Services, Department of Commerce, Washington, D. C. Price on application.)

Here is a detailed account of the methods followed and results achieved by the Council and its five committees set up to study USA production methods and report on means of improving production in the United Kingdom.

As this report points out, one of the five committees was assigned the study of standardization, specialization, and simplification. The report of the standardization committee was published in 1949 under the title, "Simplification in Industry." The committee followed up with a further report, "Simplification in British Industry," which gave concrete evidence of progress in individual firms. It also recommended a systematic expansion of the British Standards Institution and its activities. This proposal is now being carried out. "Both Sections of the Council are of the opinion that simplification, standardization, and specialization in industrial production should be pursued vigorously," the Final Report declares.

An appendix, entitled "Impact of the Reports on Industry," reviews developments in seven industries that have sent teams to the USA. These cover steel founding, drop forging, gray ironfounding, internal combustion engines, Diesel locomotives, men's clothing, cotton spinning and doubling, materials handling, and management accounting. "This preliminary account suggests that the final record when completed is likely to be impressive," the Report comments.

• Taps and Dies for Unified and American Screw Threads. (Published by the Tap and Die Division, Metal Cutting Tool Institute, 3114 Chrysler Building, 405 Lexington Avenue, New York 17, N. Y. 8 pp. Heavy paper cover. 50 cents.)

Tables list available standard hand taps (in both numbered and fractional sizes) for tapping Unified and American National coarse and fine threads. Tap recommendations are included for a wide variety of classes of Unified and American screw threads.

• ASTM Standards on Metallic Electrical Conductors. (American Society for Testing Materials, 1916 Race Street, Philadelphia 3, Pa. 262 pp, heavy paper cover, $3.00.)

In this special compilation, 46 ASTM standards and tentative specifications and methods of test are sponsored by ASTM Committee B-1 on Wires for Electrical Conductors. Four of the standards are new, and 35 have been revised.

This especially built 28-foot trailer houses the new Detroit Ordnance District Mobile Gage Laboratory, first of its kind. Since the trailer is insulated and air conditioned, temperatures can be held to 68 F, standard for gage testing. First used at the Evans Products Company, Plymouth, Michigan, it will bring gage-testing facilities directly to industrial plants in the District, saving millions of dollars by reducing the number of inaccurate parts passed along to assembly, according to estimates of Ordnance officials. Itinerary is to be determined by carefully kept records of gage use and probable life expectancy.

AMERICAN STANDARDS

Status as of January 19, 1953

Standards Council — Approval by Standards Council is final approval as American Standard; usually requires 4 weeks.

Board of Review—Acts for Standards Council and gives final approval as American Standard; action usually requires 2 weeks.

Correlating Committees — Approve standards to send to Standards Council or Board of Review for final action; approval usually takes 4 weeks.

Acoustics

In Correlating Committee—

Octave-Band Filter Set for the Analysis of Noise and Other Sounds, Specification for, Z24.10

Method for Measurement of Characteristics of Hearing Aids, Z24.14

Sponsor: Acoustical Society of America

Building

American Standards Approved—

Gypsum Sheathing Board, Specifications for, ASTM C79-52; ASA A68.1-1953 (Revision of ASTM C79-50; ASA A68.1-1951)

Gypsum Wall Board, Specifications for, ASTM C36-52; ASA A69.1-1953 (Revision of ASTM C36-50; ASA A69.1-1951)

Methods of Testing Gypsum and Gypsum Products, ASTM C26-52; ASA A70.1-1953 (Revision of ASTM C26-50; ASA A70.1-1951)

Structural Clay Load-Bearing Wall Tile, Specifications for, ASTM C34-52; ASA A74.1-1953 (Revision of ASTM C34-50; ASA A74.1-1951)

Concrete Building Brick, Specifications for, ASTM C55-52; ASA A75.1-1953 (Revision of ASTM C55-37; ASA A75.1-1942)

Structural Clay Non-Load-Bearing Tile, Specifications for, ASTM C56-52; ASA A76.1-1953 (Revision of ASTM C56-50; ASA A76.1-1951)

Structural Clay Floor Tile, Specifications for, ASTM C57-52; ASA A77.1-1953 (Revision of ASTM C57-50; ASA A77.1-1951)

Solid Load-Bearing Concrete Masonry Units, Specifications for, ASTM C145-52; ASA A81.1-1953 (Revision of ASTM C145-40; ASA A81.1-1942)

Methods of Sampling and Testing Structural Clay Tile, ASTM C112-52; ASA A83.1-1953 (Revision of ASTM C112-36; ASA A83.1-1942)

Methods of Sampling and Testing Concrete Masonry Units, ASTM C140-52; ASA A84.1-1953 (Revision of ASTM C140-39; ASA A84.1-1942)

Sponsor: American Society for Testing Materials

In Correlating Committee—

Building Exits Code, A9 (NFPA 101) (Revision of A9.1-1951)

Sponsor: National Fire Protection Association

Standards Submitted—

Building Brick (Solid Masonry Units made from Clay and Shale), Specifications for, ASTM C62-50; ASA A98

Facing Brick (Solid Masonry Units made from Clay or Shale), Specifications for, ASTM C216-50; ASA A99

Sponsor: American Society for Testing Materials

Gypsum Wallboard for Interior Finishes, A97

Sponsors: American Institute of Architects; Gypsum Association

Consumer

American Standard Approved—

(AATCC 33-52; ASA L14.69-1952)

Sponsors: American Society for Testing Materials; American Association of Textile Chemists and Colorists

Test for Flammability of Clothing Textiles, (AATCC 33-52; ASA L14.69-1952)

Electrical

American Standards Published—

Electron Tube Bases, Caps, and Terminals, C60.1-1952 (Revision of C60.1-1949) $1.50

Sponsor: Joint Electron Tube Engineering Council

Methods of Testing Electron Tubes, C60.5-1952 $1.25

Sponsor: Joint Electron Tube Engineering Council

In Board of Review—

Transformers, Regulators, and Reactors, Terminology for, C57.10 (Revision of C57.10-1948)

Transformers, Regulators, and Reactors, General Requirements for, C57.11 (Revision of C57.11-1948)

Instrument Transformers, C57.13 (Revision of C57.13-1948)

Loading and Operation of Instrument Transformers, Guide for, C57.33 (Revision of C57.33-1948)

Sponsor: Electrical Standards Committee

Laminated Thermosetting Products, C59.16 (Revision of C59.16-1951; NEMA 46-118)

Sponsor: American Society for Testing Materials

In Correlating Committee—

Soft or Annealed Copper Wire, Specifications for, ASTM B3-52T; ASA C7.1 (Revision of ASTM B3-45; ASA C7.1-1947 R1951)

Medium-Hard-Drawn Copper Wire, Specifications for, ASTM B3-52T; ASA C7.3 (Revision of ASTM B2-49; ASA C7.3-1951)

Tinned Soft or Annealed Copper Wire for Electrical Purposes, Specifications for, ASTM B33-52T; ASA C7.4 (Revision of ASTM B33-50; ASA C7.4-1951)

Bronze Trolley Wire, Specifications for, ASTM B9-52; ASA C7.5 (Revision of ASTM B9-49; ASA C7.5-1951)

Hot-Rolled Copper Rods for Electrical Purposes, Specifications for, ASTM B49-52; ASA C7.7 (Revision of ASTM B49-50; ASA C7.7-1951)

Concentric-Lay-Stranded Copper Conductors, Hard, Medium-Hard, or Soft, Specifications for, ASTM B8-52; ASA C7.8 (Revision of ASTM B8-50; ASA C7.8-1951)

Soft Rectangular and Square Bare Copper Wire for Electrical Conductors, Specifications for, ASTM B48-52; ASA C7.9 (Revision of ASTM B48-49; ASA C7.9-1951)

Hard-Drawn Copper Alloy Wires for Electrical Conductors, Specifications for, ASTM B105-52; ASA C7.10 (Revision of ASTM B105-49; ASA C7.10-1951)

Concentric-Lay-Stranded Aluminum Conductors, Hard-Drawn, Specifications for, ASTM B231-52; ASA C7.21 (Revision of ASTM B231-49; ASA C7.21-1951)

Concentric-Lay-Stranded Aluminum Conductors, Steel Reinforced, Specifications for, (ACSR) ASTM B232-52T; ASA C7.22 (Revision of ASTM B232-50T; ASA C7.22-1951)

Rolled Aluminum Rods (EC Grade) for Electrical Purposes, Specifications for, ASTM B233-52; ASA C7.23 (Revision of ASTM B233-49; ASA C7.23-1951)

Copper Bus Bar, Rod, and Shapes, Specifications for, ASTM B187-52; ASA C7.25

Seamless Copper Bus Pipe and Tube, Specifications for, ASTM B188-52; ASA C7.26

Aluminum Bars for Electrical Purposes (Bus Bars), Specifications for, ASTM B236-52T; C7.27

Standard Weight Zinc-Coated (Galvanized) Steel Core Wire for Aluminum Conductors, Steel Reinforced, Specifications for, ASTM B246-52T; ASA C7.28

Sponsor: American Society for Testing Materials

Withdrawal Requested—

Bare Concentric-Stranded Copper Cable for Insulated Conductors: Hard, Medium-Hard or Soft, Specifications for, C8.14-1938

Sponsor: Electrical Standards Committee

Ferrous Materials and Metallurgy

American Standard Approved—

Malleable Iron Castings, Specifications for, G48.1-1953 (Revision of ASTM A47-48; ASA G48.1-1949)

Sponsor: American Society for Testing Materials

Fuels

In Board of Review—

Method of Test for Calorific Value of Gaseous Fuels by Water Flow Calorimeter, ASTM D900-48; ASA Z68.1

Definition of Terms, Gross Calorific Value and Net Calorific Value of Fuels, ASTM D407-44; ASA Z67.1

Sponsor: American Society for Testing Materials

Standard Submitted—

ASTM Standard Method of Test for Specific Gravity of Gaseous Fuels, ASTM D1070-52; ASA Z69

Sponsor: American Society for Testing Materials

Gas Burning Appliances

American Standards Approved—

Requirements for Installation of Gas Conversion Burners in Domestic Ranges, Z21.39-1953

Listing Requirements for Gas Conversion Burners for Domestic Ranges, Z21.39-1953

Sponsor: American Gas Association

Materials and Products

In Correlating Committee—

Copper and Copper-Base Alloy Forging Rods, Bars, and Shapes, Specifications for, ASTM B124-51; ASA H7.1 (Revision of ASTM B124-49; ASA H7.1-1949)

Free-Cutting Brass Rod and Bar for Use in Screw Machines, H8.1 (Revision of ASTM B16-49; ASA H8.1-1949)

Seamless Copper Water Tube, Specifications for, ASTM B88-51; ASA H23.1 (Revision of ASTM B88-50; ASA H23.1-1949)

Seamless Copper Pipe, Standard Sizes, Specifications for, ASTM B42-51; ASA H26.1 (Revision of ASTM B42-49; ASA H26.1-1949)

Seamless Red Brass Pipe, Standard Sizes, Specifications for, ASTM B43-51; ASA H27.1 (Revision of ASTM B43-49; ASA H27.1-1949)

Copper-Silicon Alloy Wire for General Purposes, Specifications for, ASTM B99-51; ASA H30.1 (Revision of ASTM B99-49; ASA H30.1-1949)

Brass Wire, Specifications for, ASTM B134-51; ASA H32.1 (Revision of ASTM B134-50; ASA H32.1-1951)

Leaded Red Brass (Hardware Bronze) Rods, Bars, and Shapes, Specifications for, ASTM B140-51; ASA H33.1 (Revision of ASTM B140-50; ASA H33.1-1951)

Sponsor: American Society for Testing Materials

Mechanical

American Standard Approved—

Track Bolts and Nuts, B18.10-1952 (Revision of B18d-1930)

Sponsor: American Society of Mechanical Engineers

American Standard Reaffirmed—

American Standard Fire-Hose Coupling Screw Thread, B26-1925 (R 1947)

Sponsors: American Society of Mechanical Engineers; American Water Works Association; National Board of Fire Underwriters

Motion Pictures

American Standards Approved—

Cutting and Perforating Dimensions for 35-Millimeter Motion Picture Film (Alternate Standards for Either Positive or Negative Raw Stock), PH22.1-1953

Dimensions for Projection Lamps, Medium Prefocus Ring Double-Contact Base-Up Type, for 16-Millimeter and 8-Millimeter Motion Picture Projectors, PH22.84-1953

Dimensions for Projection Lamps, Medium Prefocus Base-Down Type, for 16-Millimeter and 8-Millimeter Motion Picture Projectors, PH22.85-1953

Enlargement Ratio for 16-Millimeter to 35-Millimeter Optical Printing, PH22.92-1953

Sponsor: Society of Motion Picture and Television Engineers

Optics

In Board of Review—

Nomenclature for Radiometry and Photometry, Z58.1.1

Sponsor: Optical Society of America

Petroleum Products and Lubricants

American Standards Approved—

Test for Cone Penetration of Lubricating Grease, ASTM D 285-52T; ASA Z11.3-1952 (Revision of ASTM D 217-48; ASA Z11.3-1947)

Test for Flash and Fire Points by Means of Open Cup, ASTM D 92-52; ASA Z11 .6-1952 (Revision of ASTM D 92-46; ASA Z11.6-1947)

Test for Flash Point by Means of the Pensky-Martens Closed Tester, ASTM D 93-52; ASA Z11.7-1952 (Revision of ASTM D 93-46; ASA Z11.7-1947)

Test for Distillation of Gasoline, Naphtha, Kerosene, and Similar Petroleum Products, ASTM D 86-52; ASA Z11.10-1952 (Revision of ASTM D 86-46; ASA Z11.10-1947)

Test for Distillation of Natural Gasoline, ASTM D 216-52; ASA Z11.11-1952 (Revision of ASTM D 216-40; ASA Z11.11-1940, R-1947)

Test for Sulfur in Petroleum Products and Lubricants by the Bomb Method, ASTM D 129-52; ASA Z11.13-1952 (Revision of ASTM D 129-51; ASA Z11.13-1951)

Test for Saponification Number of Petroleum Products by Color-Indicator Titration, ASTM D 94-52T; ASA Z11.20-1952 (Revision of ASTM D 94-48T; ASA Z11 .20-1949)

Test for Flash Point by Tag Closed Tester, ASTM D 56-52; ASA Z11.24-1952 (Revision of ASTM D 56-51; ASA Z11.24-1951)

Test for Carbon Residue of Petroleum Products, ASTM D 189-52; ASA Z11.25-1952 (Revision of ASTM D 189-46; ASA Z11.25-1947)

Test for Distillation of Gas Oil and Similar Distillate Fuel Oils, ASTM D 158-52; ASA Z11.26-1952 (Revision of ASTM D 158-41; ASA Z11.26-1941 (R-1949)

Definitions of Terms Relating to Petroleum, ASTM D 288-52; ASA Z11.28-1952 (Revision of ASTM D 288-51; ASA Z11.28-1951)

Test for Precipitation Number of Lubricating Oils, ASTM D 91-52; ASA Z11.30-1952 (Revision of ASTM D 91-40; ASA Z11.30-1940)

Test for Gravity of Petroleum and Petroleum Products by Means of the Hydrometers, ASTM D 287-52; ASA Z11.31-1952 (Revision of ASTM D 287-39; ASA Z11.31-1939, R-1947)

Test for Distillation of Crude Petroleum, ASTM D 285-52; ASA Z11.32-1952 (Revision of ASTM D 285-41; ASA Z11.32-1941, R 1947)

Test for Unsulfonated Residue of Petroleum Plant Spray Oils, ASTM D 483-52T; ASA Z11.41-1952 (Revision of ASTM D 483-51T; ASA Z11.41-1951)

Stoddard Solvent, Specifications for, ASTM D 484-52; ASA Z11.42-1952 (Revision of ASTM D 484-40; ASA Z11.42-1940, R-1947)

Test for Distillation of Plant Spray Oils, ASTM D 447-52T; ASA Z11.43 (Revision of ASTM D 447-51T; ASA Z11.43-1951)

Test for Vapor Pressure of Petroleum Products (Reid Method), ASTM D 323-52; ASA Z11.44-1952 (Revision of ASTM D 323-49; ASA Z11.44-1949)

Test for Carbon Residue of Petroleum Products, ASTM D 524-52T; ASA Z11.47-1952 (Revision of ASTM D 524-51T; ASA Z11.47-1951)

Test for Oil Content of Paraffin Wax, ASTM D 721-51T; ASA Z11.52-1952 (Revision of ASTM D 721-47; ASA Z11.52-1948)

Test for Neutralization Value (Acid and Base Numbers) by Electrometric Titrations, ASTM D 664-52; ASA Z11.59-1952 (Revision of ASTM D 664-51; ASA Z11.59-1951)

Test for Saponification Number of Petroleum Products by Potentiometric Titration, ASTM D 939-52; ASA Z11.67-1952 (Revision of ASTM D 939-50; ASA Z11.67-1950)

Test for Acetylene in Polymerization Grade Butadiene by Silver Nitrate Method, ASTM D 1020-52; ASA Z11.74-1952.

Test for Separation of Residue from Butadiene, ASTM D 1023-52; ASA Z11.75-1952

Test for Nonvolatile Residue of Polymerization Grade Butadiene, ASTM 1025-52; ASA Z11.76-1952

Test for Acidity of Residue from Distillation of Gasoline and of Petroleum Solvents, ASTM D 1093-52; ASA Z11.77-1952

Sponsor: American Society for Testing Materials

Photography

American Standards Approved—

Dimensions for Aerial Film Spools, PH1.2-1952 through PH1.9-1952 (Revision of

Z38.1.32-1945 through Z38.1.34-1945 and Z38.1.36 through Z38.1.40-1945)

Roll Film and Unsensitized Leaders and Trailers for Aerial Photography, PH1.10-1952 (Revision of Z38.1.4-1944)

Sensitometry and Grading of Photographic Papers, PH2.2-1953 (Revision of Z38.2.3-1947)

Back Window Location for Roll Film Cameras, PH3.1-1952 (Revision of Z38.4.9-1944)

Method for Determining Performance Characteristics of Focal-Plane Shutters Used in Still Picture Cameras, PH3.2-1952 (To replace WS Z52.65-1946)

Exposure-Time Markings for Focal-Plane Shutters Used in Still Picture Cameras, PH3.3-1952 (To replace Proposed WS Z52.64)

Method for Determining Performance Characteristics of Between-the-Lens Shutters Used in Still Picture Cameras, PH3.4-1952 (To replace Z52.63-1946)

Exposure-Time Markings for Between-the-Lens Shutters Used in Still Picture Cameras, PH3.5 (To replace WS Z52.62-1946)

Tripod Connections for American Cameras (¼ in.-20 thread), PH3.6-1952 (Revision of Z38.4.1-1942)

Tripod Connections for Heavy-Duty or European Cameras (⅜ in.-16 thread adapter for ¼ in.-20 tripod screws), PH3.7-1952 (Revision of Z38.4.2-1942)

Sheet Film Processing Tanks, Specifications for, PH4.2-1952 (Revision of Z38.8.15-1949)

Photographic Trays, Specifications for, PH4.3-1952

Photographic Hangers (Channel-Type, Plate and Sheet Film), Specifications for, PH4.4-1952

Photographic Grade Sodium Acid Sulfate, Fused ($NaHSO_4$), Specifications for, PH4.105-1952

Photographic Sodium Sulfite (Na_2SO_3), Specifications for, PH4.275-1952 (Revision of Z38.8.275-1948)

Sponsor: Photographic Standards (Correlating) Committee

Pipe and Fittings

American Standards Approved—

Cast Iron Pit Cast Pipe for Water or Other Liquids, Specifications for, A21.2-1953 (Revision of A21.2-1939)

Cement Mortar Lining for Cast Iron Pipe and Fittings, Specifications for, A21.4-1953 (Revision of A21.4-1939)

Cast Iron Pipe Centrifugally Cast in Metal Molds, for Water or Other Liquids, Specifications for, A21.6-1953

Cast Iron Pipe Centrifugally Cast in Sand-Lined Molds, for Water or Other Liquids, Specifications for, A21.8-1953

Mechanical Joint for Cast Iron Pressure Pipe and Fittings, Specifications for, A21.11-1953

Sponsors: American Gas Association; American Society for Testing Materials; American Water Works Association; New England Water Works Association

In Correlating Committee—

Brass or Bronze Flanges and Flanged Fittings, 150 and 300 Lb, B16.24

Sponsors: Manufacturers Standardization Society of the Valve and Fittings Industry; Heating, Piping, and Air Conditioning Contractors National Association; American Society of Mechanical Engineers

Standards Submitted—

Cast-Brass Solder Joint Drainage Fittings, B16

Sponsors: Manufacturers Standardization Society of the Valve and Fittings Industry; Heating, Piping, and Air Conditioning Contractors National Association; American Society of Mechanical Engineers

Safety

In Board of Review—

Prevention of Dust Explosions in Terminal Grain Elevators, Code for, Z12.4; NFPA 61B (Revision of ASA Z12.4-1950)

Prevention of Dust Explosions in Flour and Feed Mills, Code for, Z12.3; NFPA 61C (Revision of ASA Z12.3-1946)

Pulverizing Systems for Sugar and Cocoa, Code for, Z12.6; NFPA 262 (Revision of ASA Z12.6-1946)

Prevention of Dust Ignitions in Country Grain Elevators, Code for, Z12.13; NFPA 64 (Revision of ASA Z12.13-1946)

Prevention of Dust Explosions in the Manufacture of Aluminum, Bronze Powder, Code for, Z12.11; NFPA 651 (Revision of ASA Z12.11-1946)

Explosion and Fire Protection in Plants Producing or Handling Magnesium Powder or Dust, Code for, Z12.15; NFPA 652 (Revision of ASA Z12.15-1946)

Prevention of Dust Explosions in Coal Pneumatic Cleaning Plants, Code for, Z12.7; NFPA 653 (Revision of ASA Z12.7-1946)

Prevention of Dust Ignitions in Spice Grinding Plants, Code for, Z12.9; NFPA 656 (Revision of ASA Z12.9-1946)

Prevention of Dust Explosions in Woodworking Plants, Code for, Z12.5; NFPA 663 (Revision of ASA Z12.5-1942)

Prevention of Dust Explosions in Confectionery Plants, Code for, Z12.18; NFPA 657

Sponsor: National Fire Protection Association

Street and Highway Traffic

In Board of Review—

Practice for Street and Highway Lighting, D12.1 (Revision of D12.1-1947)

Sponsor: Illuminating Engineering Society

What's New on American Standard Projects

Protective Lighting for Industrial Properties, A85—

Sponsor: Illuminating Engineering Society

Great interest was shown in bringing the American War Standard on protective lighting up to date at the first meeting of this recently organized committee. The meeting, held January 19 in New York, considered a draft standard prepared by the Technical Committee on Protective Lighting of the Illuminating Engineering Society and approved by the Society's Council. It was pointed out that the standard itself remains substantially the same as the American War Standard approved in 1942, but extensive changes have been made in the appendices to cover new lighting equipment that has come into use since that time.

The committee decided that the reference to industrial properties is to be dropped from the title of the standard, recognizing the fact that the standard practice will apply to protective lighting for schools, government installations, and business property as well as to factories and other industrial properties.

After changes suggested at the meeting are incorporated, a revised draft will be sent to the sectional committee for letter ballot vote.

National Electrical Code, C1—

Sponsor: National Fire Protection Association

Interpretation No. 389 was issued by the National Electrical Code Committee January 8, 1953. It applies to Section 3362 on Installation of Non-Metallic Sheathed Cable in Concrete Raceways.

Question: "With respect to Section 3362 of the 1951 edition of the National Electrical Code, may nonmetallic sheathed cable be run or fished in concrete raceways built in brick walls or concrete floor slabs not exposed to excessive moisture or dampness?" *Answer:* "Yes."

Motion Pictures, PH22—

Sponsor: Society of Motion Picture and Television Engineers

April 15 has been set as the deadline for comments on a proposed American Standard for aperture calibration of motion picture lenses.

Since 1940 there has been a rapidly growing need in the motion picture industry for a more accurate expression of the photographic speed of a lens than is afforded by the simple *f*-number ratio, SMPTE, explains. The proposed American Standard now offered for comment is the product of many years' effort to reach agreement on a standard photometric method of aperture calibration.

For STANDARDIZATION's photography fans, the following, from an article in the *SMPTE Journal*, explains the problem: "The density of a photographic image depends on *(a)* the brightness of the subject, *(b)* the effective speed of the lens, *(c)* the speed of the film, *(d)* the exposure time, and *(e)* processing of the film. In modern motion picture production all these factors except *(b)* are controlled or known to within a few percent, but the supposed speed of the lens may be in error by as much as 60 or 70 percent. This is caused by loss of light through surface reflections or direct absorption in the lens, and occasionally to incorrect marking of the *f*-number scale."

A subcommittee on Lens Calibration was set up by the Standards Committee of SMPTE to study the whole subject and recommend a standard procedure for measuring the effective photographic speed of the lens. This subcommittee became the Optics Committee in 1949.

The committee's proposal for a photometric type of aperture calibration ("T-stop") was sent to the Standards Committee in May 1951 but several negative votes were based on objections to paragraphs dealing with some of the practical applications of T-stops. These paragraphs have been eliminated in the present proposed American Standard.

Industrial Sanitation, Z4—

Sponsor: Federal Security Agency, U. S. Public Health Service

Reports have been received from subcommittees preparing revisions of the three existing American Standards on industrial sanitation. These are American Standard Safety Code for Industrial Sanitation in Manufacturing Establishments, Z4.1-1935; American Standard Specifications for Drinking Fountains, Z4.2-1942; and American Standard Sanitary Privy, Z4.3-1935. The proposed draft revision is now before the sectional committee for consideration.

Determination of Rentable and Usable Areas in Buildings, Z65—

Sponsors: National Association of Building Owners and Managers; Office of Education of the Federal Security Agency.

The organization meeting of this new sectional committee was held at the headquarters of the American Institute of Architects in Washington, January 15. Representatives of 15 organizations were present.

The committee selected Henry Lear, manager of the Fidelity-Philadelphia Trust Building, Philadelphia, representing the National Association of Building Owners and Managers, as chairman. H. J. Gerrity of NABOM was elected secretary.

Committee discussions indicated that problems of determining building areas are of common concern not only to all branches of the realty interest where the need is self-evident but also to those interested in constructing and operating other types of buildings, including schools and other public buildings, industrial buildings, and hospitals.

The problem of how to determine building areas, particularly the rentable and usable areas, has been of common concern to many public, institutional, and governmental groups. For many years the NABOM have had formulae for determining rentable areas in buildings. However, these formulae have not been accepted on a country-wide basis and different practices have been followed from city to city in determining rentable areas from plans or from the actual building itself. Common problems also exist in determining rentable areas in industrial and so-called loft buildings, but these have had less study. In addition, there are no generally recognized methods for determining outside or inside areas, these depending somewhat upon variations in design and construction as well as upon variations in practices.

All of these problems are to receive attention from the committee. Subcommittees are soon to be organized to undertake the several investigations needed for the various types of buildings.

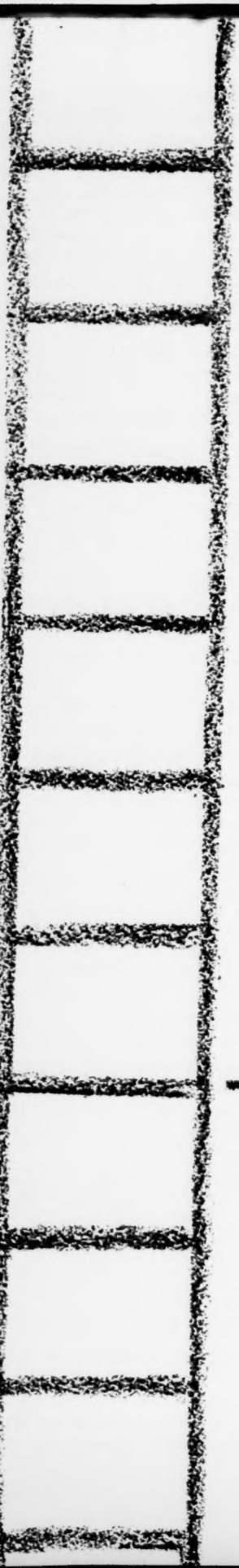
• • **The Greater New York Safety Convention,** scheduled to be held in New York March 24-27, will have 57 sessions at which accident and health problems and their control will be discussed.

Sessions on industrial health, industrial waste disposal, materials handling, modern machine guarding, protection of workers, elevators, construction, and inspection, will be of special interest to industry.

• • **David R. Miller,** Chief of the Gage Section of the National Bureau of Standards, retired on December 19 after 44 years of service at the Bureau. Mr Miller had an important part during those 44 years in work leading to development of nationally recognized American Standards on screw threads as well as to international agreements for the unification of screw threads and gages.

• • **Two American Standards now available** provide specifications and recommended dimensions for cores on which 16-mm motion picture raw stock is wound, and uniform practice with respect to the interval between edge numbers when they are latent-image printed on 16-mm raw stock film. This distance has been established as 40 frames between consecutive numbers; however, it is not the intent to imply that all 16-mm film should be edge-numbered. These two standards (PH22.38-1952, a revision of a 1944 edition, and PH22.83-1952) were developed under sponsorship of the Society of Motion Picture and Television Engineers.

• • **Microfilm copies** of recent volumes of STANDARDIZATION can be obtained from University Microfilms, 313 N. First Street, Ann Arbor, Michigan, at $1.50 per volume.



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